DOCUMENT RESUME

ED 121 005 95 EC 082 493

AUTHOR Barron, Arleen S.
TITLE Assessing Research Needs Related to Education of the Handicapped. Final Report.
INSTITUTION Educational Testing Service, Princeton, N.J.
SPONS AGENCY Bureau of Education for the Handicapped (DHEW/OE), Washington, D.C. Div. of Innovation and Development.
PUB DATE Sep 75
CONTRACT OEC-0-74-7366
NOTE 165p.; For related information, see EC 082 488-491

EDRS PRICE MF-$0.83 HC-$8.69 Plus Postage
DESCRIPTORS *Career Education; Conference Reports; *Early Childhood Education; Educational Needs; Elementary Secondary Education; Exceptional Child Education; *Handicapped Children; Needs Assessment; Personnel Needs; Research Needs; *Severely Handicapped; Special Education; *Teacher Education
IDENTIFIERS Final Reports

ABSTRACT

Four conferences involving key special education personnel were held on research needs related to: 1) career education for the handicapped, 2) education for the severely handicapped, 3) early childhood education for the handicapped, and 4) development of personnel to serve the handicapped. Major concerns of the career education conference were development of skills for leisure time activities as well as work and the need to find and use existing knowledge to develop methodologies and programs. Themes of the conference on education of the severely handicapped included the need for an adequate system of information exchange among researchers and practitioners, the need for research to be directed to the most critical problems and to be nationally coordinated, and the importance of continuous surveillance and longitudinal data collection. Stressed in the conference on early childhood education for the handicapped were the need for improved early diagnosis, appropriate intervention, research on programs and agencies to develop total service models, and the identification of personnel competencies. Focused on in the conference on the development of personnel to serve the handicapped was the importance of pupil achievement as the basis for judging personnel and program success. Areas of common concern across conferences included the need for information systems and the impact of affirmative action mandates. Primary outcomes of each conference were an annotated bibliography and proceedings of the conference. The major portion of the document consists of appendixes such as the conference schedules and participants and conference recommendations. (DB)

Documents acquired by ERIC include many informal unpublished materials not available from other sources. ERIC makes every effort to obtain the best copy available. Nevertheless, items of marginal reproducibility are often encountered and this affects the quality of the microfiche and hardcopy reproductions ERIC makes available via the ERIC Document Reproduction Service (EDRS). EDRS is not responsible for the quality of the original document. Reproductions supplied by EDRS are the best that can be made from the original.

ED121005

U S DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Final Report

Contract No. OEC-0-74-7366

Arleen S. Barron
Educational Testing Service
Princeton, New Jersey 08540

ASSESSING RESEARCH NEEDS RELATED TO EDUCATION OF THE HANDICAPPED

September 1975

U. S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Office of Education

Bureau of Education for the Handicapped
(Division of Innovation & Development)

EC082493

ABSTRACT

As part of its program to develop a more formal and systematic process for planning research, the Division of Innovation and Development, Bureau of Education for the Handicapped awarded a contract to Educational Testing Service in July 1974 to conduct four conferences on research needs related to: 1) career education for the handicapped; 2) education for the severely handicapped; 3) early childhood education for the handicapped; and 4) development of personnel to serve the handicapped.

In preparation for the conferences, key people in the field of special education recommended who should be involved and topics to be considered. Annotated bibliographies were produced from a computerized search of the literature on education for the handicapped, 1964-1974. Steering committees decided on topics to be addressed, dates, and the structure of the conferences.

Each conference included an orientation session and focus presentations on the conference topics. In working sessions, the participants generated ideas about needs for research, synthesized the more critical of these, and finally selected the needs they considered top-priority.

Proceedings of each conference, including statements of Bureau objectives, focus presentations, and participants' final recommendations to the Bureau on critical needs for research, were published and distributed to participants.

Final Report

Contract No. OEC-0-74-7366

Assessing Research Needs Related to Education of the Handicapped

Arleen S. Barron

Educational Testing Service

Princeton, New Jersey 08540

September 1975

The research reported herein was performed pursuant to a contract with the Office of Education, U. S. Department of Health, Education, and Welfare. Contractors undertaking such projects under Government sponsorship are encouraged to express freely their professional judgment in the conduct of the project. Points of view or opinions stated do not, therefore, necessarily represent official Office of Education position or policy.

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

Office of Education
Bureau of Education for the Handicapped

EC084493

PREFACE

The U. S. Office of Education has as one of its priorities the assurance of equal educational opportunities for the handicapped. The Bureau of Education for the Handicapped approaches support for research related to education for the handicapped by first clarifying its own objectives and by developing a system for managing research relative to these objectives. Rather than simply reacting to field-initiated requests for research support, the Bureau is assuming an active leadership role in the identification of the problem areas to be solved through research. It seeks, further, to establish priorities among research needs as a guide to short- and long-term program planning and resource allocation. The Bureau has determined that it will involve fully the researchers and consumers of research in special education in order to identify needs, establish priorities, and stimulate creative approaches to overcome the barriers to appropriate education for the handicapped. National research needs conferences are among the strategies the Bureau has chosen to establish such a dialogue with its constituency.

Educational Testing Service applauds the Bureau for its forward-looking approach to planning its research efforts and is pleased to have had a part in facilitating the planning process. It was a rewarding experience to work with the dedicated people who serve the handicapped. We shall be interested in following the implementation of the participants' recommendations.

Grateful acknowledgement is made of the contribution of Harold J. Alford who initiated the project and directed its early progress while he was on staff at Educational Testing Service and who served as Chairman for the first conference after joining the faculty at Rochester Institute of Technology. I wish to thank the conference steering committees, group leaders, special presenters, and participants, whose noteworthy contributions to the project are incorporated in this report.

I am indebted to Jack R. Childress for corporate support of the project; to Jean F. Reiss for assistance in staging the conferences; to Charles R. Doty, George A. Isaacs, and Roberta S. Bach for assistance in analyzing the conference reports; to Margaret B. Lamb who coordinated and supervised all administrative aspects of the project; to Jill L. Conover for primary secretarial support; to Jane M. Williams for assistance with the publications; to Estelle G. Bartels for editorial support; to William G. Shearn and the Henry Chauncey Conference Center staff who provided for the conference and participant requirements; and to Helen Gross for her support to Harold Alford.

I offer very special recognition and thanks to Nathaniel H. Hartshorne who is editor of the project documents and who has been a valued associate throughout the project.

Princeton, New Jersey
September, 1975

Arleen S. Barron

CONTENTS

Abstract		i
Preface		v
List of Figures		ix
List of Tables		xi
Introduction		1
Methods and Procedures		3
Identification of Key Individuals and Major Areas of Concern		3
Preparation of Annotated Bibliographies		3
Organization of the Conferences		4
Conduct of the Conferences		6
Preparation of Reports and Conference Proceedings		12
Results		15
Conclusions		19
Appendix A:	Descriptors Used for a Search of the Literature, 1964-1974	29
Appendix B:	Contents of the Bibliographies of Research Reports, Demonstration Projects, and Other Materials Related to Education for the Handicapped, 1964-1974	31
Appendix C:	Conference Steering Committees	37
Appendix D:	Conference Schedules	45
Appendix E:	Conference Participants	63
Appendix F:	Report of the Steering Committee for the Conference on Research Needs Related to Education of the Severely Handicapped	91
Appendix G:	References for Project Documents	97
Appendix H:	Conference Recommendations on Research Needs	99
Appendix I:	Preliminary Conference Recommendations for Research, ordered by frequency	167

LIST OF FIGURES

Figure 1:	Conceptual Model for the Conference on Research Needs Related to Education of the Severely Handicapped	9
Figure 2:	Conceptual Model for the Conference on Research Needs Related to the Preparation of Personnel to Serve the Handicapped	11
Figure 3:	Relationship Between Final and Preliminary Recommendations for Research Related to Career Education for the Handicapped	16
Figure 4:	Relationship Between Final and Preliminary Recommendations for Research Related to Education for the Severely Handicapped	17
Figure 5:	Model for Research Related to Career Education for the Handicapped	20
Figure 6:	Programmatic Structure for Research Related to Career Education for the Handicapped	21
Figure 7:	Model for Research Related to Education for the Severely Handicapped	22
Figure 8:	Model for Research Related to Early Childhood Education for the Handicapped	23

LIST OF TABLES

Table 1: Preliminary Conference Recommendations for Research Related to Career Education for the Handicapped, ordered by frequency 169

Table 2: Preliminary Conference Recommendations for Research Related to Education of the Severely Handicapped, ordered by frequency 173

Table 3: Preliminary Conference Recommendations for Research Related to Early Childhood Education for the Handicapped, ordered by frequency 175

Table 4: Preliminary Conference Recommendations for Research Related to the Development of Personnel to Serve the Handicapped, ordered by frequency 177

INTRODUCTION

The Division of Innovation and Development, Bureau of Education for the Handicapped, has stated its position on research planning as:

> The research program of the Bureau of Education for the Handicapped has as its mission the improvement of educational programs for handicapped children through stimulation and support of applied research and related activities. Support is directed at providing the information and resources necessary to increase the availability of appropriate educational opportunities for every handicapped child.

Basic to the research program is the development of a more formal and systematic process for planning research. The Bureau has, therefore, determined that it will proceed through two major steps. First, five primary objectives for the 1970s were established:

1. To assure that every handicapped child is receiving an appropriately designed education by 1980 (85 percent by 1978)
2. To assure that by 1977, every handicapped child who leaves school has had career educational training that is relevant to the job market, meaningful to his career aspirations, and realistic to his fullest potential
3. To secure the enrollment by 1978 of 850,000 (85 percent) preschool-aged handicapped children in Federal, State, and local educational day care
4. To assure that all handicapped children served in the schools have sufficient trained personnel who are competent in the skills required to aid the child in reaching his full potential
5. To enable the most severely handicapped children and youth to become as independent as possible, thereby reducing their requirement for institutional care and providing opportunity for self-development

Second, the Bureau sought to establish a dialogue with a broad range of people who are knowledgeable in the field of special education, those who are engaged in research, and those organizations and individuals who utilize the knowledge and programs

developed through such research. The purpose of tne dialogue is to involve the field fully in the development of long-range research plans and the identification of specific research tasks that merit immediate support. One of the strategies to establish communication between the Bureau and its constituency provides for national forums for discussion of major issues in topical areas of education for the handicapped, especially those problems which can be addressed through research and related activities.

In July 1974, a contract was awarded to Educational Testing Service (ETS) to conduct separate conferences on four major areas of research needs related to education for the handicapped:

Career education for the handicapped

Education for the severely handicapped

Early childhood education for the handicapped

Development of personnel to serve the handicapped

Each conference was to be designed by a steering committee, each was to involve about 100 people representing all levels of education for the handicapped, and each was to produce an assessment and documentation of critical needs for research, rationales of why the research was needed, suggestions on approaches to doing the research, and statements on how the research might be used in the field. The conferences were to be held at the ETS Henry Chauncey Conference Center, Princeton, New Jersey.

Preliminary to each conference, ETS was to prepare as a working paper and distribute to registered participants a bibliography of documents relevant to the conference topic published during 1964-74.

METHODS AND PROCEDURES

The project was designed to proceed through five phases:

Identification of Key Individuals and Major Areas of Concern

Preparation of Annotated Bibliographies

Organization of the Conferences

Conduct of the Conferences

Preparation of Reports and Conference Proceedings

Through each of the phases, the ETS project staff maintained frequent communication with the Project Officer to establish policies and to ensure that procedures would lead to a product of optimum usefulness to the Bureau and to those engaged in education for the handicapped. It should be noted that although the time allotted was extremely short for a project of this size and complexity, the ETS staff and the Project Officer did manage to develop and conduct four separate national conferences, each focusing on a separate topical aspect and each designed by its own national steering committee.

Identification of Key Individuals and Major Areas of Concern

The original plan called for a mail survey of a representative national sample of researchers and practitioners in order to solicit ideas from a broad spectrum of people concerned with education for the handicapped. However, because of time constraints, advice was sought from a limited number of key people.

Letters were sent to chief state school officers, state directors of special education, and officers of professional organizations and associations that work with the handicapped. These people were asked to recommend individuals to be involved in the conferences and topics that they would like to have considered.

The responses received from 43 states and 9 associations were shared with the Bureau and the conference steering committees. The responses included expressions of interest in and support for the project.

Preparation of Annotated Bibliographies

In order to develop these bibliographies, a computerized search was made of the literature for the period 1964-1974. The search

was limited to physical and mental handicaps; social handicaps were specifically omitted. For this search, terms representing a broad spectrum of education were coordinated with term representing the handicapped population and handicapping conditions. (The major descriptors used for the search are given in Appendix A.) Over 8,000 annotated items were obtained through the Lockheed DIALOG network from Psychological Abstracts, ERIC: Research in Education and Current Index to Journals in Education, and The National Technical Information Service.

A search was undertaken and annotated printouts were secured on research in progress through the Smithsonian Science Information Exchange. Additional bibliographical data were secured through MEDLINE.

In all, over 10,000 citations were identified. These were categorized for inclusion in separate working papers for each of the four conferences. The appropriate bibliography was mailed to each of the registered conference participants. (The contents of these bibliographies are given in Appendix B.)

In addition, each participant at the Conference on Research Related to Early Childhood Education for the Handicapped was given a copy of: Wynne Associates. *Mainstreaming and Early Childhood Education for Handicapped Children: Review and Implications of Research*. Washington, DC, January 1975.

Organization of the Conferences

The Steering Committees

The critical first step in planning a conference is the appointment of a steering committee for professional guidance and leadership. Members of the committees for this project were selected from among the concerned and knowledgeable members of federal agencies and the authoritative resource people and innovators in the field who represent both varying points of view and regional concerns.

To form these committees--one for each conference--a list of potential nominees was compiled from recommendations received during the first phase and sent to the Bureau. From these lists and other sources of information, the Bureau drew up the detailed approved list for each conference. Nominees were sent an explanation of the project, an outline of committee duties, and an invitation to participate. Among the duties was participation in a planning meeting on: issues to be considered; the conference format; possible presenters, work group leaders, and participants; dates for the conference; and other matters related to the design and conduct of a productive conference. (The steering committees are listed in Appendix C.) The planning meeting agenda and background information were sent to those who were able to accept.

In order to make possible the maximum participation of staff from the Bureau, all steering committee meetings were held in Washington, D. C. Each meeting started with an evening session, continued through the next day and evening, and ended at noon on the third day. Schedules were as follows:

Career Education	August 26-28
Personnel Development	August 28-30
Early Childhood Education	September 4-6
Severely Handicapped	September 16-18

In all, there were 39 participants at these meetings.

From their knowledge of, and experience in, the field, the committee members decided on the four topics, or tasks, to be addressed by the participants and worked out the structure for the conference. They also decided on the dates on which such a conference could be given to gain maximum attendance. Further, the members drew on their knowledge of the people in their field to identify possible conference leaders who, in turn, would be helpful in suggesting possible participants. All sessions were taped.

Selected portions of these tapes were transcribed and included in the pre-conference papers, which were sent to the appropriate members for review and comment along with a list of potential conference participants and a draft letter or invitation. From their suggestions, final drafts and lists of participants were developed for review and approval by the Bureau.

Preparation for the Conference

The participants approved by the Bureau were sent letters of invitation, a brief description of the project, the conference schedule, an invitation list, and a return card. As regrets were received, invitations were sent to alternate approved nominees. Those who accepted the invitation were sent the appropriate annotated bibliography and a packet of information on the conference. Each participant was asked to indicate on a registration card his or her profession and whether or not special accommodations would be needed for physical handicaps. Because the mail service had become especially unreliable, it was necessary before each conference to contact by phone both those persons who had not responded to the invitation and those who had accepted but whose registration had not been received.

The people who had been recommended as speakers were invited to make major presentations on assigned topics. Members of each steering committee were asked to be group leaders; in the few instances when members could not serve, alternates were invited.

Arrangements had been made at the ETS Henry Chauncey Conference Center for housing and meals for all participants and for meeting facilities. In all, five participants were in wheelchairs and

were accommodated in the Center's specially equipped rooms; the one blind participant did not request special accommodations. A large meeting room seating over 100 people was used for all general sessions; 10 individual meeting rooms were available for the small working sessions. All sessions were taped.

Members of the steering committee, the group leaders, and whenever possible, the presenters, came to the Center for a final planning meeting on the evening and morning preceding each conference. At this meeting, the conference procedures were gone over in detail, and participants and group leaders were assigned to work groups so that each group had representation by profession, by geographic area, and by type of institution. The speakers presented a brief overview of the topics they planned to cover. Time had been allowed during this final meeting to accommodate any last-minute changes that the committee or the Bureau might wish to make. There were, however, only a few requests for very minor changes so that time was available for those who wished to meet with other members of the ETS staff or to tour the campus.

Conduct of the Conferences

The format developed for each conference provided for maximum opportunities for leadership by authorities in the field of education for the handicapped, stimulation by experts in each of the four major topics under consideration, and full participation by all who were in attendance. Each conference proceeded through the following steps:

1. Orientation and overview: Max Mueller, Chief, Research Projects Branch, Division of Innovation and Development, Bureau of Education for the Handicapped, presented an overview of the Bureau's research objectives as well as the objectives identified by the Steering committee for that particular conference.

2. Focus session: Before the working sessions on each topic or task began, an authority or a panel of authorities spoke on the state of the art and needs for further research in that area, focusing the attention of the participants and raising questions to be addressed in subsequent working sessions.

3. Working session: Participants then withdrew to work in small groups to develop statements on research needs related to that topic. This was carried out in three steps:

   Unrestrained "brain-storming" to generate as many ideas on the topic as possible within a given time*

---

*The participants were advised that their recommendations need not be confined to the conference agenda, the conceptual framework developed by the steering committee, or the Bureau's defined area of responsibility. Reports are to be shared with other federal agencies concerned with education and with the handicapped.

Identification from among these ideas of the more important needs for research

Preparation of detailed descriptions of these key needs along with the rationale for each, potential use of the research information, and possible research approaches

4. Synthesis: After this focus session--working session procedure had been followed for each of the four tasks, the participants began to synthesize all their ideas. Working in small groups, the participants studied the reports on research needs submitted by all the groups. They then proceeded through three steps:

   Selection from the total pool of ideas the several most critical needs for research in each topic area

   Identification from among these of one top-priority need in each area

   Full description of these needs with statements on rationale, potential uses of the research information, and possible research approaches

5. Final selection: At this stage of the conference, each group of participants had to reach consensus on one top-priority research need and write a supporting statement.

6. Group reports: In the final session of each conference, the participants met to report their top-priority research needs.

With some minor adaptations, the steps outlined above were carried out over a two day period at each of the conferences. (See Appendix D for conference schedules.) Because the level of concentration required by the conference schedule was so intense and because difficulties with transportation required some participants to leave the conference early, it was not possible to hold a final discussion, as originally planned. The result of each conference was, in each case, one (or several) need(s) for research submitted by each work group as top-priority in the area of education for the handicapped under consideration.

Important details of each of the conferences are presented below. The lists of participants are to be found in Appendix E. It should be noted that the titles and addresses given in these lists are those that were in effect at the time of the conferences.

Conference on Career Education for the Handicapped

January 17-19, 1975

Four members of the Bureau and 76 other participants were in attendance. Edwin Martin, Associate Commissioner, Bureau of

Education for the Handicapped, spoke to the participants at the opening session. Melville Appell, Bureau Project Officer for research related to career education, spoke at the closing session.

The Four major areas of focus and presenters were:

Preparation	E. Ross Stuckless, chairman Donn Brolin John W. Kidd
Exploration	Henry V. Colella, chairman Gary M. Clark Chris J. DeProspo
Maintenance and Mobility	Gerald I. Manus, chairman Richard M. Lash
Leisure and Retirement	Peter Verhoven, chairman Donald Hawkins Gerald L. Hitzhusen Alan M. Hofmeister, reactor Muriel Manus, reactor

Leaders for the small group work sessions were:

Donn Brolin	Dorothy MacConkey
Mabel Evans Cason	Kirk M. Sorensen
Alan M. Hofmeister	E. Ross Stuckless
Robert R. Lauritsen	Raymond J. Trybus
Alexander Law	Darrell L. Ward

Conference on Education for the Severely Handicapped

January 31-February 2, 1975

Five members of the Bureau and 86 other participants were in attendance. Robert Herman, Acting Associate Deputy Commissioner, Bureau of Education for the Handicapped, spoke to the participants at the opening session. The four major areas of focus and presenters were:

Goals	Marc Gold
Service	Phillip Roos
Communications	Henry Leland
Management/Administration	James Budde

A conceptual model for the conference was developed by the Steering Committee to take into account 10 major areas of concern and the relationships among them (see Figure 1 on the following page). At the conference, 10 work groups were constituted to conform to these areas, with each group addressing each of the focus topics from its own perspective. For example, group 1 was concerned first with identifying research related to goals for the prevention of handicapping conditions, then service delivery systems for prevention, communications needs related to prevention, and so on.

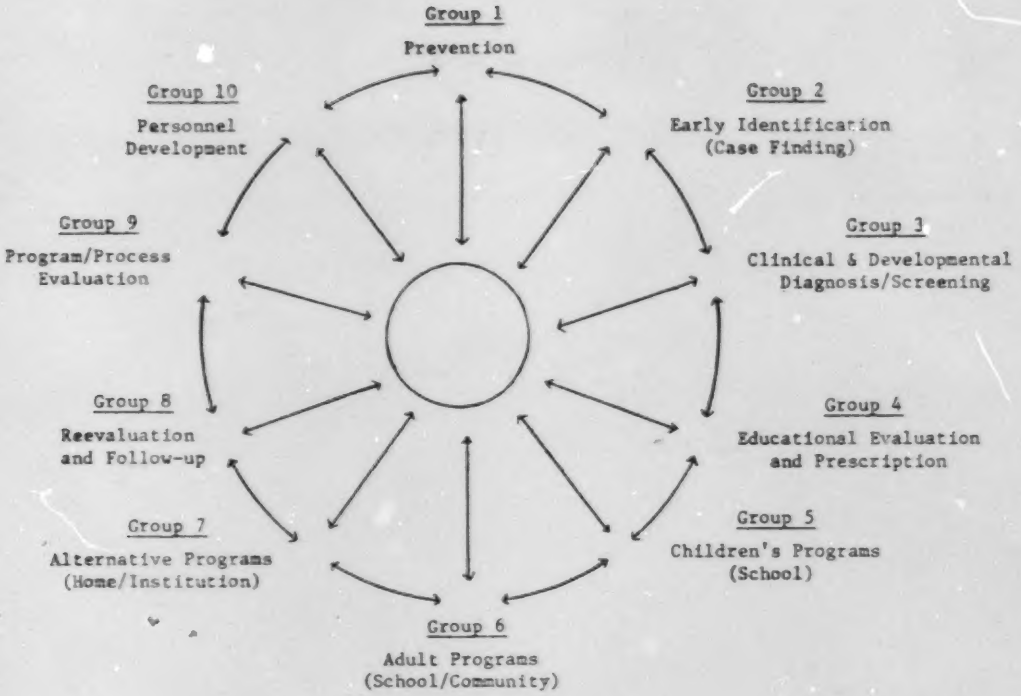


Figure 1: Conceptual Model for the Conference on Research Needs Related to Education of the Severely Handicapped

The small group work session assignments and the group leaders were:

Prevention	Richard Umansky, Ronnie Gordon
Early Identification	Don Welch
Diagnosis & Screening	Diane D. Bricker
Educational Evaluation & Prescription	T. Timothy Crowner
Children's Programs	Alice H. Hayden
Adult Programs	Floyd E. McDowell
Alternative Programs	James Lent
Re-evaluation and Follow-up	Edwin K. Hammer
Program/Process Evaluation	David Boesel
Personnel Development	Verna Hart

Conference on Early Childhood Education for the Handicapped

February 11-13, 1975

Five members of the Bureau staff and 86 other participants were in attendance. Edwin Martin, Associate Commissioner, Bureau of Education for the Handicapped, spoke to the participants at the opening session. The four major areas of focus and presenters were:

Child Characteristics	Nicholas Anastasiow
Service Delivery Systems	Shirley Cohen
Institutional Models	Irving Sigel
Personnel Development	Winifred Northcott

Leaders for the small group work sessions were:

Monica Deubel	Gretchen M. Phair
Joyce Evans	Bernard A. Banet
Ernest A. Gotts	George A. Kahdy
David L. Lillie	Robert L. Huskey
William J. Meyer	

Differentiating between service delivery systems and institutional models was especially troublesome, so for the synthesis and group consensus on the top-priority needs described previously, the two areas were combined and groups were constituted according to the participants' own preference into three focus-centered work groups.

The group assignments and the group leaders were:

Child Characteristics	William J. Meyer
Service Delivery Systems and Institutional Models	David L. Lillie
Personnel Development	Ernest A. Gotts

Conference on the Development of Personnel to Serve the Handicapped*

March 7-9, 1975

Four members of the Bureau staff and 62 other participants were in attendance. Kenneth McLaughlin, Educational Program Specialist, Bureau of Education for the Handicapped, spoke briefly at the closing session.

---

*Although other terms such as personnel preparation have been used during the course of the project, the one given here is the preferred title.

The four major areas of focus and presenters were:

Pupil Outcomes	Richard E. Shores
Personnel Selection	Joseph Eisenbach
Personnel Training	Hugh S. McKenzie
Personnel Utilization	Leonard Burrello

The Steering Committee developed the following conceptual framework for the conference:

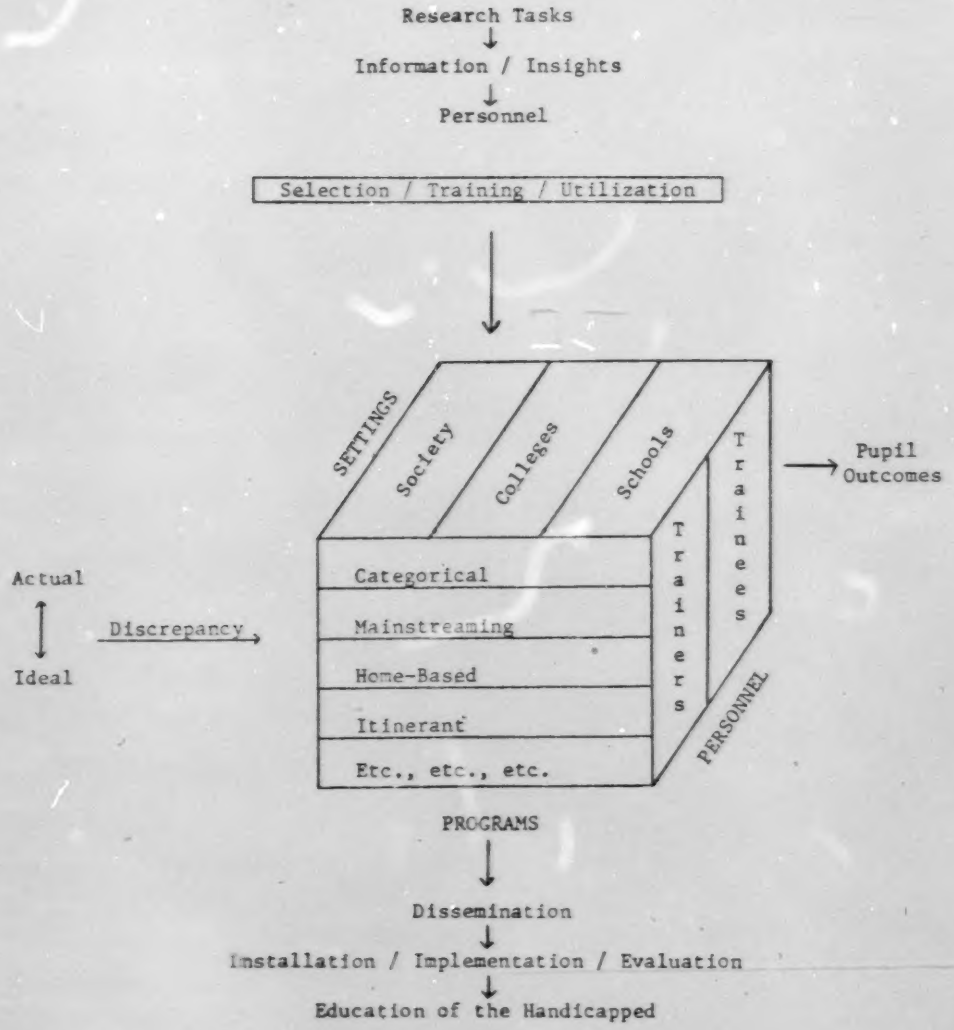


Figure 2: Conceptual Model for the Conference on Research Needs Related to the Preparation of Personnel to serve the Handicapped

Leaders for the small group work sessions were:

Richard B. Dever	Donald Linkowski
Joseph Eisenbach	Dorothy Semmel
Jean S. Garvin	Gloria F. Wolinsky
Leonard Hall	

At the close of each conference, members of the Steering Committee, other conference leaders, and members of the Bureau met briefly with the ETS project staff. Discussions during this meeting centered for the most part on the effectiveness of the conference in achieving the goal of developing recommendations to the Bureau, clarification of the outcomes, and guidance to the staff on the preparation of reports. The committee for the Conference on Education of the Severely Handicapped voted to prepare a report to be included with the conference proceedings. That report, prepared under the direction of T. Timothy Crowner, is presented in Appendix F.

Preparation of Reports and Conference Proceedings

The decision was made to include in the proceedings of each conference the following:

- The talk on the Bureau's research objectives and an overview of this project given by Max Mueller at each conference
- The statement on the objectives of the Bureau given by Edwin Martin at the first conference
- The focus presentations
- The detailed report of identified needs for research presented as the participants' recommendations to the Bureau

Since none of the speakers had been asked to prepare a paper in advance, it was necessary in most cases to develop an edited manuscript from the taped recording. These manuscripts were further edited, revised, and finally approved by the speakers.

Data for the recommendations on needs for research came from the following reports during the several steps of the conference:

- Identification of research needs separately by focus area
- Synthesis of all identified needs into statements on the most critical needs by focus area
- Identification of the top-priority need(s) for research across the four focus areas

These reports include an abundance of ideas and a massive amount of data generated by the participants during the four conferences.

The content of the conference reports was analyzed in two ways. The first analysis started with the brief statements of top-priority needs for research that were presented at the final session. These needs were broken into individual issues and combined across group reports where there was overlap. Each of these issues was then followed back through the precedent reports to trace its evolution and to pick up additional supporting information that reflected the participants' intent. These expanded statements are given in the recommendations section of the conference proceedings as Top-Priority Research Needs.

The second content analysis started from the opposite direction. The research needs reported in the initial steps of the conference were categorized and combined to eliminate overlap. These needs statements were then traced through the synthesis step into the group consensus reports on top-priority needs for research. The needs, or issues, which were not selected for the final reporting but which were identified by the participants with some frequency are included in the recommendations section of the conference proceedings as Additional Research Needs.

In order to ensure maximum usefulness of the proceedings, full drafts were sent for review to the Bureau and to the appropriate conference steering committee members and group leaders. For all conferences, a total of 83 people were asked to review the proceedings; comments were received from 28.

A summary of both analyses is presented in the section on Results which follows.

RESULTS

The primary outcomes of the project are two documents for each conference:

Annotated bibliography of research reports, demonstration projects, and other materials for the period 1964-74

Proceedings of the conference that include:
- A foreword by Edwin Martin
- A statement of the Bureau's research objectives and purpose of the conferences delivered by Max Mueller
- A brief description of the background of the conference and its procedures
- Recommendations by the participants to the Bureau on critical needs for research
- Lists of the Steering Committee members and conference participants

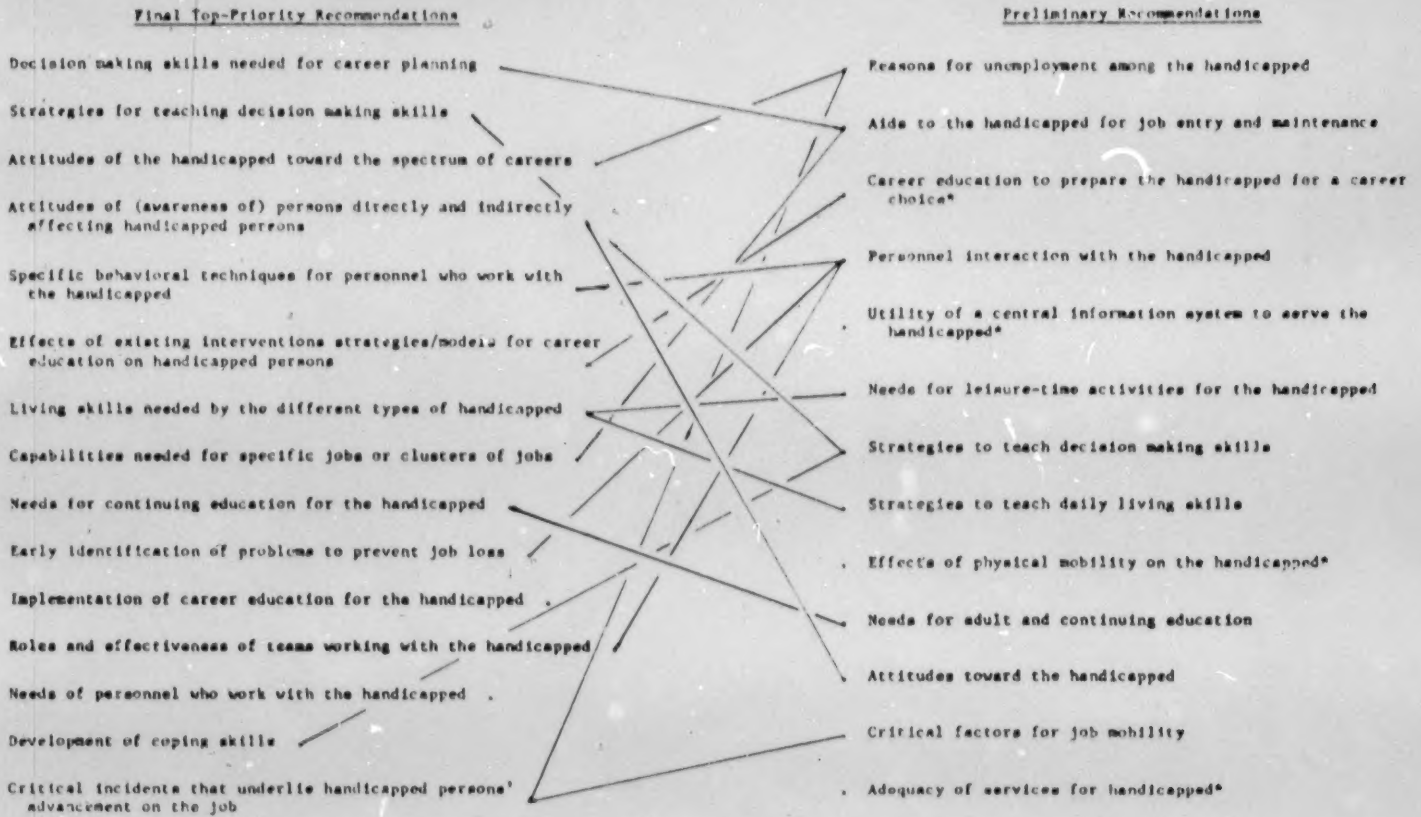
References for these documents are given in Appendix G. The Recommendations sections of the Proceedings are reproduced in Appendix H.

The top-priority research needs were reported at the final session. However, those needs that were mentioned most frequently during the preliminary discussions might also be considered the most critical--that is, frequency might be seen as another measure of priority. Frequency counts of the preliminary recommendations are given in Appendix I.

It is interesting to note that the number of needs differed according to the conference structure and topical area. For career education, a very broad area ranging from early identification of handicapping conditions through education and employment into retirement, many needs were identified. The conference on education for the severely handicapped, on the other hand, was structured so that each of the 10 working groups would focus on a defined aspect of the topic (see page 9). The needs that were identified were few in number but quite detailed. The conferences on early childhood education and personnel were relatively narrow in focus. The numbers of recommendations that emerged reflect the participants' concern with a limited number of discrete needs.

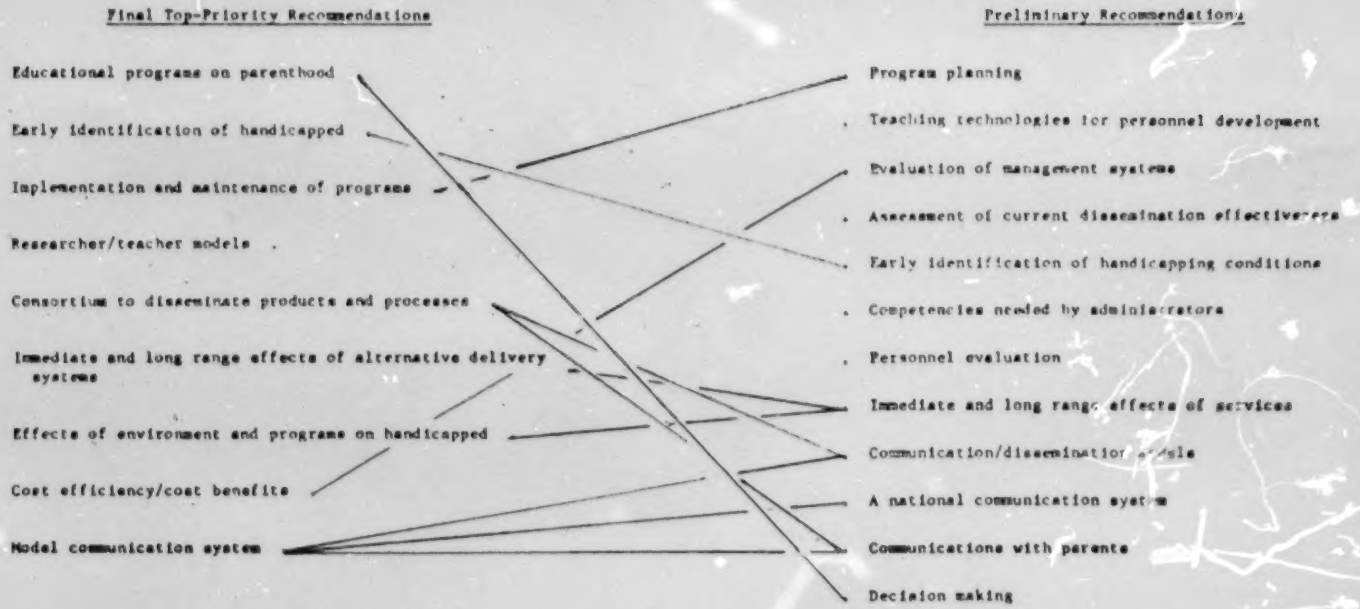
It is also interesting to compare top-priority needs as identified at the final conference session and as reported during the preliminary discussions. The relationship between these two sets of research needs is shown in Figure 3 for career education of the handicapped and in Figure 4 for education for the severely handicapped. The final top-priority needs identified at the conferences on early childhood education and personnel were very complex and emerged from so many preliminary recommendations that it is not possible to show the relationships graphically.

Figure 3: Relationship Between the Final and Preliminary Recommendations for Research Related to Career Education for the Handicapped (ordered by frequency)


Final Top-Priority Recommendations
Decision making skills needed for career planning
Strategies for teaching decision making skills
Attitudes of the handicapped toward the spectrum of careers
Attitudes of (awareness of) persons directly and indirectly affecting handicapped persons
Specific behavioral techniques for personnel who work with the handicapped
Effects of existing interventions strategies/models for career education on handicapped persons
Living skills needed by the different types of handicapped
Capabilities needed for specific jobs or clusters of jobs
Needs for continuing education for the handicapped
Early identification of problems to prevent job loss
Implementation of career education for the handicapped
Roles and effectiveness of teams working with the handicapped
Needs of personnel who work with the handicapped
Development of coping skills
Critical incidents that underlie handicapped persons' advancement on the job
Preliminary Recommendations
Reasons for unemployment among the handicapped
Aids to the handicapped for job entry and maintenance
Career education to prepare the handicapped for a career choice*
Personnel interaction with the handicapped
Utility of a central information system to serve the handicapped*
Needs for leisure-time activities for the handicapped
Strategies to teach decision making skills
Strategies to teach daily living skills
Effects of physical mobility on the handicapped*
Needs for adult and continuing education
Attitudes toward the handicapped
Critical factors for job mobility
Adequacy of services for handicapped*

*Relationships are too numerous to show graphically

Figure 4: Relationship Between the Final and Preliminary Recommendations for Research Related to Education for the Severely Handicapped (ordered by frequency)


Final Top-Priority Recommendations
Educational programs on parenthood
Early identification of handicapped
Implementation and maintenance of programs
Researcher/teacher models
Consortium to disseminate products and processes
Immediate and long range effects of alternative delivery systems
Effects of environment and programs on handicapped
Cost efficiency/cost benefits
Model communication system
Preliminary Recommendations
Program planning
Teaching technologies for personnel development
Evaluation of management systems
Assessment of current dissemination effectiveness
Early identification of handicapping conditions
Competencies needed by administrators
Personnel evaluation
Immediate and long range effects of services
Communication/dissemination model
A national communication system
Communications with parents
Decision making

CONCLUSIONS

A thorough study of the reports of each conference leads one to conclude that the participants started their small-group work by listing all research issues having to do with the first topic area that occurred to them and then thinking through in greater detail those issues that they considered most critical. When they repeated the process for the second topic, they carried over and expanded on ideas generated earlier and identified new ones. And so on for the third and fourth topics.

Having completed work on the four focus areas in this way, the participants shared reports of all the groups. Some groups adopted needs that had been reported by others, some incorporated statements that supplemented their own, and others reiterated their earlier statements.

The final conference outcomes discussed in this section are, therefore, the results of sharing and synthesis. The participants' recommendations to the Bureau are complex statements that embody a composite of needs for research often overlapping between groups and across conferences.

The Conference on Career Education for the Handicapped

At the first conference, the participants saw career education for the handicapped as a continuum beginning with early identification of the handicapped through the development of appropriate skills, into the employment and continuing education for job maintenance or mobility, and finally into retirement. Their concerns included living skills for leisure-time activities as well as for those required by the world of work. The participants' major concern was finding out what knowledge already exists and then finding ways to translate this knowledge into methodologies and programs. From the ideas generated during this conference it is possible to construct a model within which one might approach research related to career education for the handicapped. One such model (shown on the following page) illustrates the three essential dimensions identified by the participants: Institutions of Human Society, Life and Career Elements, and Career Education Objectives.

Within the model, individual cells may be further defined and related to individual researchable topics. For example, the cross-hatched cell might suggest such researchable questions as: To achieve the career education objective of educational awareness, what attitudes concerning living skills are necessary for success

in the economic institution? Or, for handicapped people to achieve the educational objective of awareness, what information about living skills is necessary for success in the economic institution?

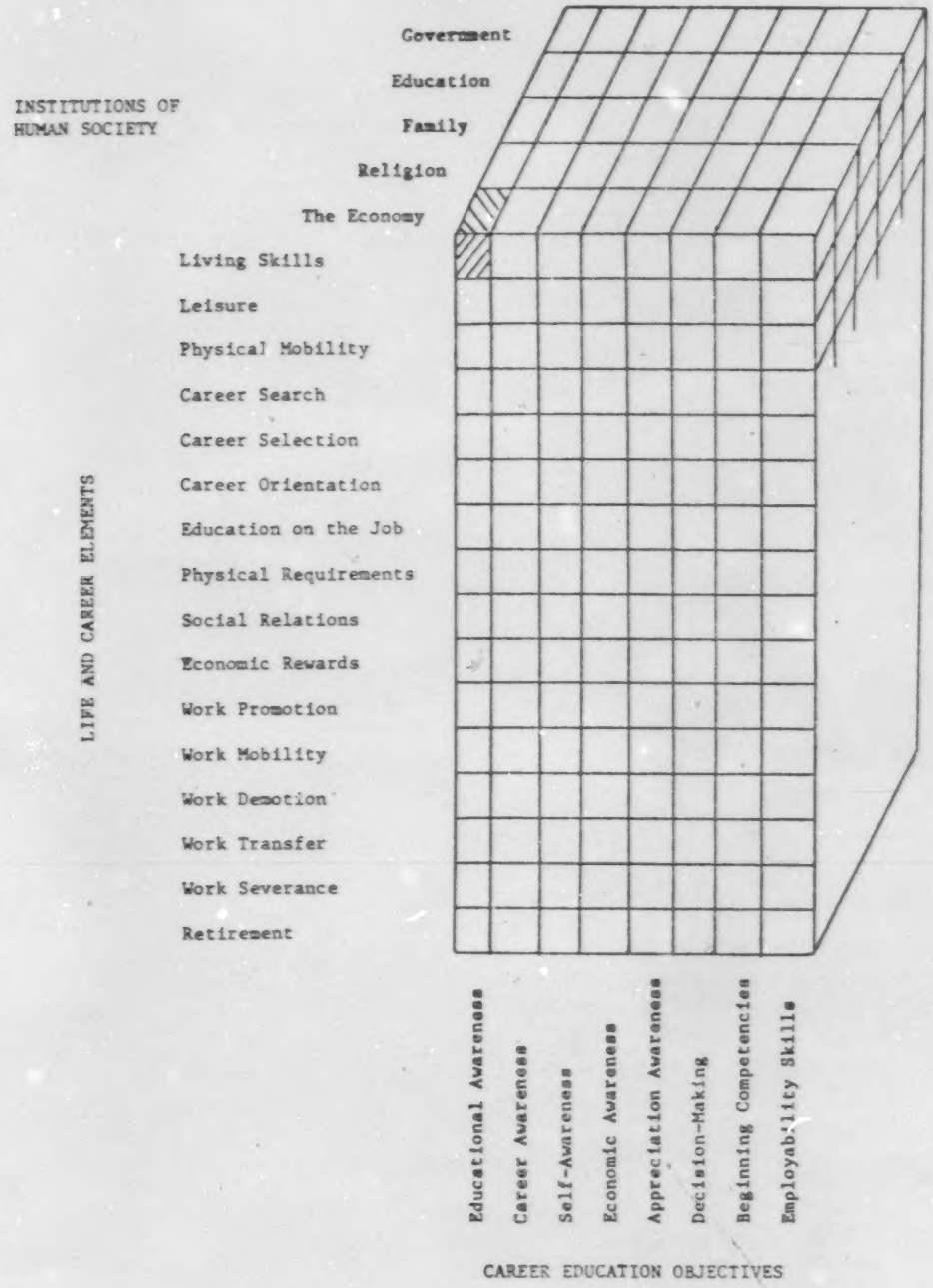


Figure 5: Model for Research Related to Career Education for the Handicapped

A comparison of this model and the top-priority needs for research suggests a research structure shown in the figure below.

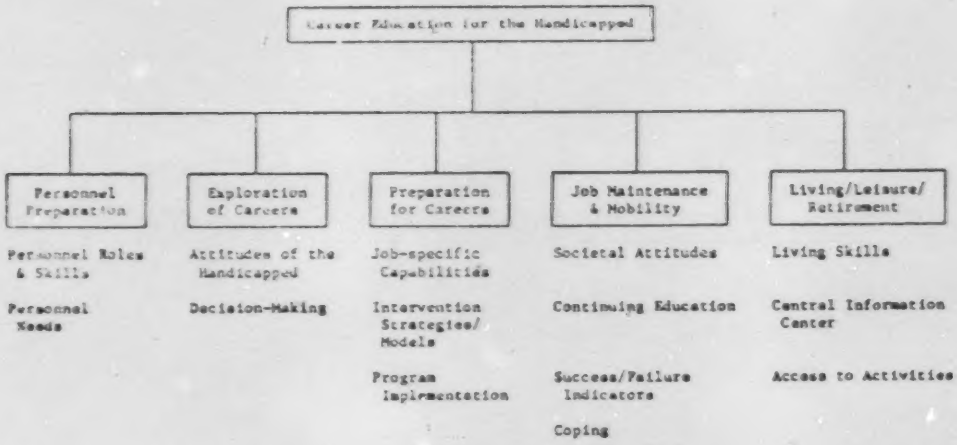


Figure 6: Programmatic Structure for Research Related to Career Education for the Handicapped

The Conference on Education for the Severely Handicapped

At the second conference, the participants identified both general and very detailed needs for research but three themes can be traced throughout the conference reports:

- The need for an adequate system for the exchange of information among researchers and practitioners
- Recommendations that research (1) be directed toward comprehensive approaches to a few of the most critical problems and (2) be coordinated by national consortia or task forces
- Stress on systems for continuous surveillence and longitudinal data collection

A study of the conference reports suggests the research model shown on the following page.

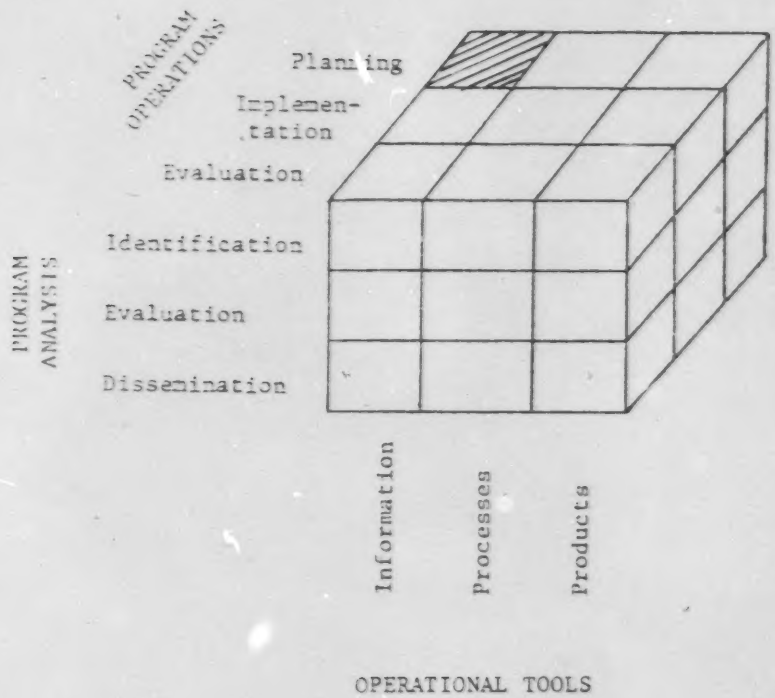


Figure 7: Model for Research Related to Education for the Severely Handicapped

Given, for example, that there is a need for research on developing effective means to educate school-age children on parenthood, a topic for research that is suggested by the crosshatched cell in the model might be: Identification of information on how to plan programs to teach the severely handicapped adolescent about parenthood.

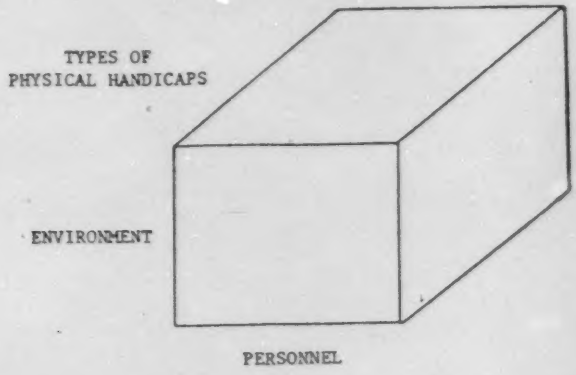
The Conference on Early Childhood Education for the Handicapped

The major themes that emerged from the third conference were:

- Great concern for improved early diagnosis
- Appropriate intervention that will lead to optimum development
- The need for comprehensive research on programs and agencies (institutions) to develop models for total service to the handicapped and their families

- Improved preparation of all personnel who work with the handicapped child by the identification of competencies that are needed and the design of effective strategies to develop these competencies

The participants stressed the need for research that is comprehensive, longitudinal, and interdisciplinary. A study of the conference suggests the model for this research, shown in Figure 8 below.



Types of Physical Handicaps

- Auditory
- Chronic Illness
- Communication
- Mental Retardation
- Multiple Handicaps
- Neurological Impairments
- Orthopedic Handicaps
- Perceptual Impairments
- Visual Handicaps

Environment

- Location
  - Rural
  - Urban
  - Suburban
- Setting
  - Home
  - Foster Home
  - Community
  - Residential
  - Center
  - School
  - Medical facilities
- Organizational Structure
  - Institution
  - Single Parent Family
  - Group Home
  - Consortia
- Service
  - Public
  - Private
- Handicapping Condition
  - Hereditary
  - Social
  - Economic

Personnel

- Types
  - Family
  - Teachers
  - Teacher Education
  - Administrators
  - Medical Personnel
- Manpower Needs
  - National
  - State
  - Local
- Competencies
  - Attitudes
  - Mental Skills
  - Physical Skills
- Needs
  - Personal
  - Pre-service Education
  - In-service Education

Figure 8: Model for Research Related to Early Childhood Education for the Handicapped

The model might be used to structure research that takes into account separate variables with each major dimension. The model suggests, for example, research on training programs for family members who provide for the educational needs of a multiply handicapped child living at home; furthermore, these programs could be assessed for relative effectiveness in rural, urban, and suburban locations.

The Conference on the Development of Personnel to Serve the Handicapped

The outcomes of the final conference focused almost exclusively on pupil achievement. The participants defined pupil progress toward desired outcomes as the basis for judging personnel success (in educational programs as well as in the field), for evaluating the performance of those who train the personnel who work directly with the handicapped, for evaluating the effectiveness of programs and patterns of personnel utilization, and so on. With so much emphasis on pupil outcomes as the criteria against which to evaluate all other aspects of education for the handicapped, the participants quite naturally stressed the need for informed ways to define educational objectives and sophisticated strategies to measure their attainment.

Major Areas of Common Concern Across Conferences

A study of the recommendations for research reveals that the participants at the four separate conferences shared a number of major concerns. The needs that were identified relative to these concerns are discussed below.

Information Systems: Almost without exception, the conference participants voiced their frustration with the inadequacies of present methods of disseminating information. They pointed out that the lack of a systematic procedure for exchanging information among researchers and between researchers and practitioners results in a loss to the field because of long delays in implementing research findings and to research because there is no organized way to channel input from the field into research efforts.

There is critical need, therefore, for a centralized national information system to collect, assemble, and disseminate information on research programs related to education for the handicapped. Included in the collection should be unpublished as well as published documents and reports of relevant work being done in other disciplines. In the assembly of materials there should be a procedure for evaluating their effectiveness and adequacy. When materials are disseminated, there should be an abstract of each document that would help the reader select those materials that are most appropriate to his needs. The system should allow for materials in addition to articles and reports that might include special media presentations offered through rental or loan arrangements.

The system should be developed by a task force or, at the very least, with the assistance of an advisory panel that is representative of the potential users of the system. It should take into account the needs for information of various constituencies (including the handicapped themselves), criteria for evaluating materials, standards for including items in the system, and alternative modes of dissemination.

The Development of Critical Skills: Since the purpose of education is to prepare the handicapped for living and for employment, it is important to know first of all what skills they need. The participants singled out for special study those skills that are required for job placement and mobility.

Research on the development of skills--whether for living or for employment--should start with defining goals that are appropriate to the individual in the context of his community, his culture, his potential, his (and his family's) aspirations. Research, therefore, is needed on how best to define such goals.

In order to develop realistic employment goals for the handicapped, job opportunities and performance requirements should be studied. The participants recommended job-task analyses to identify occupational and personal skills needed in jobs for which the handicapped are likely to be hired, an analysis of the potential for developing competencies in persons with various kinds of handicapping conditions, and a measure of fit between the two.

To develop skills in self-determination, the participants recommended basic research on decision-making skills: what they are, how they are developed and retained, and how they are used for effecting job mobility.

In addition to the initial development of skills, research should address the maintenance of these skills and the development of new ones as required or desired by the handicapped.

Much research is needed on timing to determine which skills need to be (or can be) developed at certain stages of the individual's growth. The needs for continuing education should be examined and programs should be provided to prepare the handicapped for job mobility or retirement. At the other extreme, research should address the need for early case finding as the predecessor to the design of appropriate intervention programs to ameliorate or compensate for handicapping conditions.

As a companion to each issue related to what skills to develop, there should be research on how skills are developed: What are the most effective (and efficient) teaching strategies? Who is the best teacher for given educational objectives?

Personnel Development: Having determined what skills need to be developed in handicapped persons (what to teach) and how they are

best learned (how to teach), research can then be directed toward preparing people to teach. Note that the word "personnel" is used to mean all those who have an effect on the handicapped person's growth toward desired goals. These include parents, peers, teachers, counselors, volunteer agency workers, and even those who train teachers.

Research on personnel competencies should relate specific skills and personal characteristics to specific pupil outcomes. In other words, what kind of person demonstrating what kinds of skills is capable of developing specified outcomes with specific kinds of handicapped pupils? From this research, then, comes the basis for decisions on how personnel are selected for training and for employment, how personnel are trained, and how personnel are assigned to various job roles for maximum effectiveness. "Effectiveness" should be measured by pupil achievement of educational objectives.

Having determined what personnel characteristics and competencies are needed by those who train the handicapped, research should then go the next step to determine what characteristics and competencies are needed by the trainers of such personnel.

A concomitant need for research is the development of realistic projections of manpower needs to make sure that personnel are trained--or retrained--for roles that will be needed in future programs of education of the handicapped.

Service Delivery Systems and the Learning Environment: Educational efforts operate neither in isolation nor in a vacuum. It seems logical to assume that the way (system) in which programs (services) are offered (delivered), the supporting organizational structure (environment), and patterns for utilization of personnel must relate to the outcomes as judged by pupil achievement. Participants at the four conferences recommended for priority consideration comprehensive research on how these factors interact and on how they do, in fact, relate to desired outcomes.

Answers to such seemingly simple questions as "What are the effects of mainstreaming?" require tremendously complex research. It was recommended, therefore, that consortia be funded to develop overall research designs and to study alternative models within these designs.

Measurement: In order to more fully understand the handicapped child and the impact of educational efforts, research should be directed toward tools for assessing his current status and his progress toward specified learning objectives. This research should include interpretation and evaluation of existing measures and the development of new measures for the special needs of this population. It is necessary, for example, to measure very small increments of growth, to evaluate the effectiveness of particular coping strategies, to detect very early indicators of risk, and to determine the impact of specific handicapping conditions.

Additional research is needed on observation strategies and performance-based measures that can be used to determine effective interaction between the teacher (or other personnel) and the handicapped child.

Measurement devices for the diagnosis of impediments to learning should be developed and validated for use in designing educational programs that are appropriate to the individual handicapped child's special needs and potential.

The Impact of Affirmative Action Mandates: With the enactment of recent legislation, new opportunities for employment are to be opened to the handicapped. Ways must be found through research to help employers to hire the handicapped and to utilize their competencies effectively. This research should be directed toward changing attitudes and developing understanding that the handicapped have a contribution to make. It should also lead to specific strategies for working with employers and handicapped employees on entry into the job market, appropriate job placement, maintenance of skills, and preparation for mobility through new skill development.

Attitudes: There is an overriding concern that positive or negative attitudes affect how well educational efforts can serve the needs of the handicapped. Through research it will be possible to identify attitudes (such as parents' expectations for the handicapped child, peer acceptance, teacher identity with the child's culture, and employer commitment) and the effects of these attitudes on the handicapped (e.g., self-esteem and motivation). The next step, then, is to develop strategies to modify attitudes and behaviors.

Research Approaches: Recognizing the ineffectiveness of fragmented attacks on problems in education of the handicapped, the participants repeatedly urged the Bureau to support studies that include surveys to collect meaningful baseline data, comprehensive research by multidisciplinary teams, and longitudinal follow-up to determine effects over time. They urged further that reserach include strategies for implementation.

Effectiveness of the Conferences: Along with their recommendations for a formal information system discussed above, the participants expressed a need for additional channels of communication of all kinds. These conferences, for example, were seen as tremendously effective in providing opportunities for diverse groups of colleagues to communicate with and learn from each other.

The recommendation was made several times that the outcomes of these conferences should be reported to the National Advisory Committee on the Education of the Handicapped.

The participants developed their own criterion for evaluation: the Bureau's commitment to support research that is related to the

participants' recommendations. The level of this support will be judged by the requests for proposals issued over the next few years. The participants reported a willingness to take the Chief of the Bureau's Research Projects Branch at his word when he concluded his opening address to the conferences with:

> We hope that the information generated by this conference may have a very broad impact on research programming related to the handicapped; we guarantee that your deliberations will influence the way the Bureau allocates its research resources.

APPENDIX A

Descriptors Used for a Search of
the Literature, 1964-1974

Terms representing the handicapped population
and handicapping conditions

amputees
aphasia
auditory agnosia
autism
blind
blind children
cerebral palsy
cleft lip
cleft palate
crippled children
deaf
deaf-blind
deaf children
deaf education
educable mentally handicapped
emotionally disturbed
emotionally disturbed child
epilepsy
handicapped
handicapped children
handicapped students
hyperactivity
learning disabilities
mental retardation
mentally handicapped
minimally brain injured
mongolism
multiple handicapped
neurologically handicapped
orally handicapped
orthopedically handicapped
perceptually handicapped
physically handicapped
psychosis
psychotic child
quadriplegia
retarded children
schizophrenia
severely handicapped
slow learners
speech handicapped
trainable mentally retarded
visually handicapped

Terms representing education

education
educational methods
educational needs
educational objectives
educational problems
educational programs
exceptional child education
special education

APPENDIX B

Contents of the Bibliographies of Research Reports, Demonstration Projects, and Other Materials Related to Education for the Handicapped, 1964-1974

Bibliography of Research Reports, Demonstration Projects, and Other Materials Relating to: CAREER EDUCATION FOR THE HANDICAPPED, 1964-1974

Volume 1

Foreword

Preparation

- Family and Community Involvement
- Content
- Curriculum
- Teaching Methods
- Teaching Materials
- Learning Environment

Volume 2

Exploration

- Counseling and Guidance
- Career Alternatives
- Decision Making
- Placement

Maintenance and Mobility

- Community Resources
- Retraining and Guidance
- Social Skills and Responsibilities

Leisure and Retirement

Addendum No. 1--Smithsonian Science Information Exchange, Inc.

Addendum No. 2--Bibliographies and Directories

Addendum No. 3--Papers, Conference Proceedings, Other

Bibliography of Research Reports, Demonstration Projects, and Other Materials Relating to: EDUCATION OF THE SEVERELY HANDICAPPED, 1964-1974

Volume 1

Foreword

Prevention

Early Identification/Case Finding

Clinical and Developmental Diagnosis/Screening

Educational Evaluation and Prescription

Children's Programs (School)

Adult Programs (School/Community)

Volume 2

Alternative Programs (Home/Institution)

Re-evaluation and Follow-up

Program/Process Evaluation

Personnel Development

Addendum No. 1--Smithsonian Science Information Exchange, Inc.

Addendum No. 2--Bibliographies and Resources

Addendum No. 3--Special Federal and State Reports and Legislation

Addendum No. 4--Attitudes Toward Disabilities

Addendum No. 5--Conference Papers, Reports, and Proceedings

Addendum No. 6--Speech Disorders

Bibliography of Research Reports, Demonstration Projects, and Other Materials Relating to:
EARLY CHILDHOOD EDUCATION OF THE HANDICAPPED, 1964-1974

Foreword

Child Characteristics

- General
- Categorical Orientations

Severice Delivery Systems

Institutional Modules

Personnel Preparation

Addendum--Smithsonian Science Information Exchange, Inc.

Bibliography of Research Reports, Demonstration Projects, and Other Materials Relating to:
PREPARATION OF PERSONNEL TO SERVE THE HANDICAPPED, 1964-1974

Foreword

Pupil Outcomes

- Overviews
- Categorical Orientations

Personnel Selection

- Overviews
- Attitudes, Characteristics, and Competencies
- Categorical Orientations

Personnel Training

- Special Education Teacher Preparation
- Related Professions
- Inservice Training
- Instructional Materials
- Guidebooks and Texts
- Selected Papers from Conventions, Conferences, and Workshops

Personnel Utilization

- Needs, Administration, Evaluation, and Role Evaluation
- Program Related Concerns
- Content Concerns
- Settings

Addendum No. 1--Smithsonian Science Information Exchange, Inc.

Addendum No. 2--Additional References

APPENDIX C

Conference Steering Committees

Steering Committee Members for the Conference on
Research Needs Related to Career Education for the Handicapped

Melville Appell
Program Officer
Bureau of Education for the
Handicapped
ROB #3
Washington, DC 20202

Henry Colella
Assistant Superintendent for
Special Education
BOCES Nassau County
Valentines Road & The Plain Road
Westbury, Long Island, NY 11590

Joyce Cook
Division of Research and
Demonstration, OE
ROB #3
Washington, DC 20202

Frank Hall
Indian Resources Center
Bureau of Indian Affairs
Box 1788
Albuquerque, NM 87103

Leonard Hall
Assistant Commissioner
Division of Special Education
State Department of Elementary
& Secondary Education
Box 480
Jefferson City, MO 65101

Amanda Houston
Director, Bureau of Special Needs
State Department of Education
182 Tremont Street
Boston, MA 02111

Kenneth Hoyt
Director, Office of Career Education
Office of Education
Room 3100-ROB #3
7th & D Streets, S. W.
Washington, DC 20202

Mary Johnson
Research Associate
National Institute of Education
Brown Building, Room 822
Washington, DC 20208

Oliver Kolstoe
Department of Special Education
University of Northern Colorado
Greeley, CO 80631

Robert Lauritsen
Coordinator, Program for Deaf
Students
St. Paul Technical Vocational
Institute
235 Marshall Avenue
St. Paul, MN 55102

Alexander Law
Chief, Office of Program Evaluation
& Research
State Department of Education
721 Capitol Mall, Room 616
Sacramento, CA 95814

Marie Martin
Director of Community Colleges
Office of Education
7th & D Streets
Washington, DC 20202

Max W. Mueller
Chief, Research Projects Branch
Division of Innovation & Development
Bureau of Education for the
Handicapped
ROB #3
Washington, DC 20202

Kirk Sorensen
Director of Research
Office of State Board of Education
State of Idaho
Boise, ID 83720

Richard Switzer
Headmaster
Human Resources Center
Albertson, NY 11507

Peter Verhoven
National Recreation & Parks
Association
1601 North Kent Street
Arlington, VA 22209

Steering Committee Members for the Conference on
Research Needs Related to Education of the Severely Handicapped

David Boesel
Research Associate
Research Division
National Institute of Education
1200 19th Street, N. W.
Washington, DC 20208

Diane D. Bricker
Administrator
Debbie School
P. O. Box 520006, Biscayne Annex
Miami, FL 33152

T. Timothy Crowner
Coordinator of Special Education
Madison Public Schools
501 East Badger Road
Madison, WI 53713

Robert Dantona
Bureau of Education for the Handicapped
Room 2314
ROB #3
Washington, DC 20202

Virginia Eaton
Bureau of Education for Exceptional Students
State Department of Education
Tallahassee, FL 32302

Joseph Fenton
Chief, Special Centers
HEW, Rehabilitation Services Administration
Room 3211
Mary E. Switzer Building
330 C Street, S. W.
Washington, DC 20201

Ronnie Gordon
Director
Pre-school Developmental Programs and Associate Professor of Clinical Rehabilitation Medicine
Institute of Rehabilitation
New York University Medical Center
400 East 34th Street
New York, NY 10016

Verna Hart
Department of Special Education
College of Education
University of Pittsburgh
4616 Henry Street
Pittsburgh, PA 15213

Alice H. Hayden
Associate Director
Experimental Education Unit
Child Development & Mental Retardation Center
University of Washington
Seattle, WA 98195

William E. Johnston Jr.
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

James Lent
Parsons State Hospital & Training Center
Parsons, KS 67357

Floyd E. McDowell
Principal
Meadowood School
55A South Meadowood Drive
Newark, DE 19711
and
Program Director
Keystone Learning Center
Human Development Resources
1834 Meetinghouse Road
Boothwyn, PA 19061

Max W. Mueller
Chief, Research Projects Branch
Division of Innovation & Development
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Edward W. Sontag
Branch Chief
Health, Education & Welfare
Office of Education
7th & D Streets, S. W.
Washington, DC 20202

Steering Committee Members
Conference on Research Needs Related to
Education of the Severely Handicapped

Eugene Stanmeyer
Associate Director of Clinical
Psychology
St. Elizabeth's Hospital
2690 Martin Luther King Avenue, S. E.
Washington, DC 20032

Robert Stillman
Research Scientist and Consultant
for Research
Research Division and Regional Center
for the Deaf-Blind
Callier Center for Communication Disorders
1966 Inwood Road
Dallas, TX 75235

Paul Thompson
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Don Welch
Principal
Special Education
Office of Los Angeles County
Superintendent of Schools
4400 North Roxburgh
Covina, CA 91722

Steering Committee Members for the Conference on Research Needs Related to Early Childhood Education for the Handicapped

Paul Ackerman
Chief, Program Development Branch
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Monica Deubel
Project Manager-Major Cities Project
Pupil Personnel Services
Toledo Public Schools
Manhattan and Elm
Toledo, OH 43608

Joyce Evans
Acting Director
Early Childhood Program
Southwest Educational Development Laboratory
211 East Seventh Street
Austin, TX 78701

Joy Frechtling
National Institute of Education
1200 19th Street, N. W.
Washington, DC 20208

Ernest A. Gotts
Program Area Director
Early Education for the Handicapped
Department of Special Education
University of Texas at Austin
Austin, TX 78712

Edith Grothberg
Acting Director of Research
Office of Child Development
Donahue Building, Room 5821
Washington, DC 20013

James Hamilton
Education Research Specialist
Division of Innovation & Development
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

George A. Kahdy
Deputy Assistant Superintendent for Program Services
Department of Public Instruction
North Carolina Department of Education
Raleigh, NC 27611

David L. Lillie
Director of TADS
Associate Professor of Special Education
University of North Carolina
625 West Cameron
Chapel Hill, NC 27514

Pamm Mattick
Special Education Consultant
Department of Education
Mankato State College
Mankato, MN 56001

William J. Meyer
Professor of Psychology
Department of Psychology
Huntington Hall
Syracuse University
Syracuse, NY 13214

Max W. Mueller
Chief, Research Projects Branch
Division of Innovation & Development
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Gretchen Phair
306 Westmoreland Boulevard
Madison, WI 53705

David P. Weikart
President
High/Scope Educational Research Foundation
125 North Huron
Ypsilanti, MI 48197

Mary M. Wood
Director
Early Childhood Project
Rutland Center
698 North Pope Street
Athens, GA 30601

Steering Committee Members for the Conference on
Research Needs Related to the Development
of Personnel to Serve the Handicapped

Nettie Bartel
Temple University
Broad & Montgomery
Philadelphia, PA 19122

Philip J. Burke
Chief, Comprehensive Programs
& Special Projects Branch
Bureau of Education for the Handicapped
ROB #3, Room 2019
Washington, DC 20202

Malcolm Davis
Office of Education
400 Maryland Avenue, S. W.
Washington, DC 20202

Todd Eachus
Graduate Research Center, A217B
University of Massachusetts
Amherst, MA 01373

Joseph Eisenbach
Professor and Head
Department of Special Education
Western Michigan University
Kalamazoo, MI 49001

Jean Garvin
Director of Special Education
Vermont State Department of
Education
State Office Building
Montpelier, VT 05602

Harold W. Heller
Department of Special Education
University of Alabama
Box 2592
Tuscaloosa, AL 35486

Donald Linkowski
Chairman and Associate Professor
of Education
George Washington University
2201 G Street, N. W., #514
Washington, DC 20052

Kenneth F. McLaughlin
Education Program Specialist
Bureau of Education for the Handicapped
ROB #3, Room 2012
Washington, DC 20202

Max W. Mueller
Chief, Research Projects Branch
Division of Innovation & Development
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Malcolm Provus*
University of Virginia
Charlottesville, VA 22903

Dorothy Semmel
Center for Innovation in Teaching
the Handicapped
University School
Indiana University
2805 East 10th Street
Bloomington, IN 47401

Sister Sheila
Superintendent
St. Coletta School
Jefferson, WI 53549

Frank Sobol
Office of Research
National Institute of Education
Brown Building, #815
Washington, DC 20208

Richard Whelan
UAS--Room 435
University of Kansas Medical Center
39th & Rainbow
Kansas City, KS 66103

*Deceased

APPENDIX D

Conference Schedules

	Page
Conference on Research Needs Related to Career Education of the Handicapped	47
Conference on Research Needs Related to Education of the Severely Handicapped	51
Conference on Research Needs Related to Early Childhood Education for the Handicapped	55
Conference on Research Needs Related to Personnel to Serve the Handicapped	59

CONFERENCE ON RESEARCH NEEDS RELATED TO

CAREER EDUCATION

OF THE HANDICAPPED

January 17 - 19, 1975

HENRY CHAUNCEY CONFERENCE CENTER
EDUCATIONAL TESTING SERVICE
PRINCETON, NEW JERSEY

Friday, January 17, 1975

1:00 - 3:00 PM Participant Registration
3:00 - 4:00 PM General Conference Orientation

STATEMENT of purpose, procedures, and expected outcomes.
ASSIGNMENT of participants to specific work groups and identification of meeting sites.
DISCUSSION of group process and specific tasks for each small group session.
IDENTIFICATION of support staff and explanation of support capabilities.
QUESTIONS and answers regarding operational details.

4:00 - 5:00 PM Focus Session: TASK I

Identification of Research Needs Relating to Preparation of the Handicapped for Careers.

A panel of participants will briefly discuss the state of the art and research needs relating to preparation for careers.

7:00 - 9:00 PM Small Group Interactive Workshops: TASK I

All participants to work in small groups, to identify, list, and prioritize research needs relating to preparation for careers. Worksheets will be provided.

Saturday, January 18, 1975

9:00 - 9:30 AM Response Session: TASK I

Worksheets will be collected in preparation for synthesizing session on Sunday. Progress reports and/or questions.

9:30 - 10:00 AM Focus Session: TASK 2

Identification of Research Needs Related to Exploration of Career Alternatives.

Selected participants will introduce the topic.

10:00 - noon Small Group Interactive Workshops: TASK 2

All participants to work in small groups to identify, list, and prioritize research needs relating to exploration of careers by the handicapped. Worksheets will be provided.

1:00 - 1:30 PM Response Session: TASK 2

Worksheets will be collected in preparation for synthesizing session on Sunday.

1:30 - 2:00 PM Focus Session: TASK 3

Identifying Research Needs Relating to Maintenance and Mobility in Careers Chosen by the Handicapped.

Selected participants will introduce the task of identifying research needs relating to this area.

2:00 - 4:00 PM Small Group Interactive Workshops: TASK 3

All participants to work in small groups to identify, list, and prioritize research needs relating to maintenance and mobility in careers chosen by the handicapped. Worksheets will be provided.

7:00 - 7:30 Response Session: TASK 3

Worksheets will be collected in preparation for synthesizing session on Sunday.

7:30 - 8:00 PM Focus Session: TASK 4

Identifying Research Needs Relating to Leisure and Retirement

Selected participants will introduce the task of identifying research needs related to this area, both use and abuse.

8:00 - 10:00 PM Small Group Interactive Workshops: TASK 4

All participants to work in small groups to identify, list, and prioritize research needs relating to leisure and retirement. Worksheets will be provided.

Sunday, January 19, 1975

9:00 - 10:00 AM General Synthesis Session

Members of support staff will distribute copies of the worksheets from each of the small groups to all participants, and a written synthesis of the work group products.

10:00 - 12:00 noon Small Group Synthesis Sessions

Utilizing the materials supplied by the support staff, each small group will reconsider its recommendations, considering the recommendations of other groups, for presentation to all participants in the afternoon.

1:00 - 2:00 PM Small Group Report Session (All participants)

2:00 - 3:00 PM Final Consensus Session (All participants)

3:00 PM Participant Departure

CONFERENCE ON RESEARCH NEEDS RELATED TO EDUCATION
OF THE SEVERELY HANDICAPPED

January 31 - February 2, 1975

HENRY CHAUNCEY CONFERENCE CENTER
Educational Testing Service
Princeton, New Jersey

Friday, January 31, 1975

1:00 - 3:00 p.m. Participant Registration
3:00 - 4:30 p.m. General Conference Orientation

Jack R. Childress, Vice President, Educational Testing Service
Edwin Martin, Jr., Director, Bureau of Education for the Handicapped
Max W. Mueller, Chief, Research Projects Branch, Bureau of Education for the Handicapped
Arleen S. Barron, Assistant Director of Programs of Continuing Education and Division of Instruction, Educational Testing Service

STATEMENT of purpose, procedures, and expected outcomes
ASSIGNMENT of participants to specific work groups and identification of meeting sites
DISCUSSION of group process and specific tasks for each work group session
IDENTIFICATION of support staff and explanation of support capabilities
QUESTIONS and answers regarding operational details of the Conference

The CONFERENCE FORMAT divides the work into four tasks:

1. identification of goal-related research needs
2. identification of service-related research needs
3. identification of communications-related research needs
4. identification of management/administration-related research needs

Each task will be accomplished by (1) a full conference focus session, in which the task parameters will be discussed; (2) small group interactive workshops in which all participants will concurrently address each task systematically as it relates to their assigned topic areas; and (3) a full conference response session in which participants will report briefly on the process and product of their small group sessions.

On the final day, the recommendations of the first two days will be prioritized in small group synthesis sessions, followed by a consensus session of all Conference participants.

4:30 - 5:00 p.m. Focus Session: TASK 1 (All Conference participants)

Identification of Goal-related Research Needs in the education of the severely handicapped

Marc Gold, Research Associate Professor, Children's Research Center
Institute for Research on Exceptional Children
University of Illinois

7:00 - 9:00 p.m. Small Group Interactive Workshops: TASK 1

During this time period, all participants will work in assigned small groups, to identify, list, and prioritize research needs relating to goals in education of the severely handicapped. Worksheets will be provided to be handed in Saturday morning.

Saturday, February 1, 1975

9:00 - 9:30 a.m. Response Session: TASK 1 (All Conference participants)

Support staff will collect worksheets at this time in preparation for the synthesizing session on Sunday. Groups wishing to report on progress, or ask questions about content or process, will have an opportunity to do so before proceeding to the next task.

9:30 - 10:00 a.m. Focus Session: TASK 2 (All Conference participants)

Identification of Service-related Research Needs in the education of the severely handicapped

Philip Roos, Executive Director, National Association for Retarded Citizens

10:00 - 12:00 noon Small Group Interactive Workshops: TASK 2

All participants will work in assigned small groups to identify, list, and prioritize research needs relating to service for the education of the severely handicapped. Worksheets will be provided, to be handed in after lunch.

1:00 - 1:30 p.m. Response Session: TASK 2 (All Conference participants)

Support staff will collect worksheets at this time in preparation for the synthesizing session on Sunday. Groups wishing to report on progress, or ask questions about content or process, will have an opportunity to do so before proceeding to the next task.

1:30 - 2:00 p.m. Focus Session: TASK 3 (All Conference participants)

Identification of Communications-related Research Needs in the education of the severely handicapped

Henry Leland, Professor of Psychology, Nisonger Center for Mental Retardation
Ohio State University

2:00 - 4:00 p.m. Small Group Interactive Workshops: TASK 3

All participants will work in assigned small groups to identify, list, and prioritize research needs relating to communications in education of the severely handicapped.

7:00 - 7:30 p.m. Response Session: TASK 3

Support staff will collect worksheets at this time in preparation for the synthesizing session on Sunday. Groups wishing to report on progress, or ask questions about content or process, will have an opportunity do so before proceeding to the next task.

7:30 - 8:00 p.m. Focus Session: TASK 4 (All Conference participants)

Identification of Management/Administration-related Research Needs in the education of the severely handicapped

James F. Budde, Director, Kansas University U.A.F.
Bureau of Child Research, University of Kansas

8:00 - 10:00 p.m. Small Group Interactive Workshops: TASK 4

During this time, participants will work in assigned small groups to identify, list, and prioritize research needs relating to management/ administration in the education of the severely handicapped.

At the end of this session, the support staff will collect the worksheets in preparation for the synthesis session on Sunday.

Sunday, February 2, 1975

9:00 - 10:00 a.m.	General Synthesis Session	(All Conference participants)
10:00 - 12:00 noon	Small Group Synthesis Sessions	
1:00 - 2:00 p.m.	Report Session	(All Conference participants)
2:00 - 3:00 p.m.	Final Consensus Session	(All Conference participants)
3:00 p.m.	Participants Departure	

* * * * * * *

The group leaders for the ten groups listed in the letter of invitation will be:

1.	Prevention	Richard Umansky
2.	Early Identification	Don Welch
3.	Diagnosis and Screening	Diane Bricker
4.	Educational Evaluation and Prescription	Tim Crowner
5.	Children's Programs	Alice Hayden
6.	Adult Programs	Floyd McDowell
7.	Alternative Programs	James Lent
8.	Re-evaluation and Follow-up	Edwin Hammer
9.	Program/Process Evaluation	David Boesel
10.	Personnel Development	Verna Hart

CONFERENCE ON RESEARCH NEEDS RELATED TO
EARLY CHILDHOOD EDUCATION FOR THE HANDICAPPED

February 11-[illegible], 1975

HENRY CHAUNCEY CONFERENCE CENTER
Educational Testing Service
Princeton, New Jersey

Tuesday, February 11, 1975

1:00 - 3:00 p.m. Participant Registration
3:00 - 4:30 p.m. General Conference Orientation

Jack R. Childress, Vice President, Educational Testing Service
Edwin Martin, Jr., Director, Bureau of Education for the Handicapped
Max W. Mueller, Chief, Research Projects Branch, Bureau of Education for the Handicapped
Arleen S. Barron, Assistant Director of Programs of Continuing Education and Division of Instruction, Educational Testing Service

STATEMENT of purpose, procedures, and expected outcomes
ASSIGNMENT of participants to specific work groups and identification of meeting sites
DISCUSSION of group process and specific tasks for each work group session
IDENTIFICATION of support staff and explanation of support capabilities
QUESTIONS and answers regarding operational details of the Conference

The CONFERENCE FORMAT divides the work into four tasks:

1. identification of research needs relating to child characteristics
2. identification of research needs relating to service delivery systems
3. identification of research needs relating to institutional models
4. identification of research needs relating to personnel development

Each task will be accomplished by (1) a full Conference focus session, in which the task parameters will be discussed; (2) small group interactive workshops in which all participants will concurrently address each task systematically as it relates to their assigned topic areas; and (3) a full Conference response session in which participants will report briefly on the process and product of their small group sessions.

On the final day, the recommendations of the first two days will be prioritized in small group synthesis sessions, followed by a consensus session of all Conference participants.

4:30 - 5:00 p.m. Focus Session: TASK 1 (All Conference participants)

Identification of child characteristics research needs for the early childhood education for the handicapped.

Nicholas Anastasiow, Director of the Institute for Child Studies
Department of Special Education
Indiana University at Bloomington

7:00 - 9:00 p.m. Small Group Interactive Workshops: TASK I

During this time period, all participants will work in assigned small groups to identify, list, and prioritize research needs relating to child characteristics for early childhood education for the handicapped. Worksheets will be provided and will be collected Thursday morning.

Wednesday, February 12, 1975

9:00 - 9:30 a.m. Response Session: TASK 1 (All Conference participants)

Support staff will collect worksheets at this time in preparation for the synthesizing session on Thursday. Groups wishing to report on progress, or ask questions about content or process, will have an opportunity to do so before proceeding to the next task.

9:30 - 10:00 a.m. Focus Session: TASK 2 (All Conference participants)

Identification of service delivery systems research needs for the early childhood education for the handicapped.

Shirley Cohen, Director, Special Education Development Center
Hunter College
City University of New York

10:00 - 12:00 noon Small Group Interactive Workshops: TASK 2

All participants will work in assigned small groups to identify, list, and prioritize research needs relating to service delivery systems for early childhood education for the handicapped. Worksheets will be provided, to be handed in after lunch.

1:00 - 1:30 p.m. Response Session: TASK 2 (All Conference participants)

Support staff will collect worksheets at this time in preparation for the synthesizing session on Thursday. Groups wishing to report on progress, or ask questions about content or process, will have an opportunity to do so before proceeding to the next task.

1:30 - 2:00 p.m. Focus Session: TASK 3 (All Conference participants)

Identification of institutional models research needs for the early childhood education for the handicapped.

Irving Sigel, Senior Research Psychologist and Director of the Center for Child Care Research
Institute for Research in Human Development
Educational Testing Service

2:00 - 4:00 p.m. Small Group Interactive Workshops: TASK 3

All participants will work in assigned small groups to identify, list, and prioritize research needs relating to institutional models for the early childhood education for the handicapped.

7:00 - 7:30 p.m. Response Session: TASK 3

Support staff will collect worksheets at this time in preparation for the synthesizing session on Thursday. Groups wishing to report on progress, or ask questions about content or process, will have an opportunity to do so before proceeding to the next task.

7:30 - 8:00 p.m. Focus Session: TASK 4 (All Conference participants)

Identification of personnel development research needs for the early childhood education for the handicapped.

Winifred H. Northcott, Consultant on Early Childhood Education for the Handicapped
Special Education Section
State of Minnesota Department of Education

8:00 - 10:00 p.m. Small Group Interactive Workshops: TASK 4

During this time, participants will work in assigned small groups to identify, list, and prioritize research needs relating to personnel development for the early childhood education for the handicapped.

At the end of this session, the support staff will collect the worksheets in preparation for the synthesis session on Thursday.

Thursday, February 13, 1975

9:00 - 10:00 a.m.	General Synthesis Session	(All Conference participants)
10:00 - 12:00 noon	Small Group Synthesis Sessions	
1:00 - 2:00 p.m.	Report Session	(All Conference participants)
2:00 - 3:00 p.m.	Final Consensus Session	(All Conference participants)
3:00 p.m.	Participants Departure	

CONFERENCE ON RESEARCH NEEDS RELATED TO
PERSONNEL TO SERVE THE HANDICAPPED

March 7-9, 1975

HENRY CHAUNCEY CONFERENCE CENTER
Educational Testing Service
Princeton, New Jersey

Friday, March 7, 1975

1:00 - 3:00 p.m. Participant Registration
3:00 - 4:30 p.m. General Conference Orientation

Jack R. Childress, Vice President, Educational Testing Service
Max W. Mueller, Chief, Research Projects Branch, Bureau of Education for the Handicapped
Arleen S. Barron, Assistant Director of Programs of Continuing Education and Division of Instruction, Educational Testing Service

STATEMENT of purpose, procedures, and expected outcomes
ASSIGNMENT of participants to specific work groups and identification of meeting sites
DISCUSSION of group process and specific tasks for each work group session
IDENTIFICATION of support staff and explanation of support capabilities
QUESTIONS and answers regarding operational details of the Conference

The CONFERENCE FORMAT divides the work into four tasks:

1. identification of research needs relating to pupil outcomes
2. identification of research needs relating to personnel selection
3. identification of research needs relating to personnel training
4. identification of research needs relating to personnel utilization

Each task will be accomplished by (1) full Conference focus session, in which the task parameters will be discussed; (2) small group interactive workshops in which all participants will concurrently address each task systematically as it relates to their assigned topic areas; and (3) a full Conference response session in which participants will report briefly on the process and product of their small group sessions.

On the final day, the recommendations of the first two days will be prioritized in small group synthesis sessions, followed by a consensus session of all Conference participants.

4:30 - 5:00 p.m. Focus Session: TASK 1 (All Conference participants)

Identification of pupil outcomes research needs in education for the handicapped.

Richard E. Shores, Associate Professor
Department of Special Education
George Peabody College for Teachers

7:00 - 9:00 p.m. Small Group Interactive Workshops: TASK I

During this time period, all participants will work in assigned small groups to identify, list, and prioritize research needs relating to pupil outcomes in education for the handicapped. Worksheets will be provided and will be collected Saturday morning.

Saturday, March 8, 1975

9:00 - 9:30 a.m. Response Session: TASK 1 (All Conference participants)

Support staff will collect worksheets at this time in preparation for the synthesizing session on Sunday. Groups wishing to report on progress, or ask questions about content or process, will have an opportunity to do so before proceeding to the next task.

9:30 - 10:00 a.m. Focus Session: TASK 2 (All Conference participants)

Identification of personnel selection research needs in education for the handicapped.

Joseph Eisenbach, Professor and Head of the Department of Special Education
Department of Special Education
Western Michigan University

10:00 - 12:00 noon Small Group Interactive Workshops: TASK 2

All participants will work in assigned small groups to identify, list, and prioritize research needs relating to the identification of personnel to serve the handicapped. Worksheets will be provided, to be handed in after lunch.

1:00 - 1:30 p.m. Response Session: TASK 2 (All Conference participants)

Support staff will collect worksheets at this time in preparation for the synthesizing session on Sunday. Groups wishing to report on progress, or ask questions about content or process, will have an opportunity to do so before proceeding to the next task.

1:30 - 2:00 p.m. Focus Session: TASK 3 (All Conference participants)

Identification of personnel training research needs in education for the handicapped.

Hugh McKenzie, Associate Professor of Education
Department of Special Education
University of Vermont

2:00 - 4:00 p.m. Small Group Interactive Workshops: TASK 3

All participants will work in assigned small groups to identify, list, and prioritize research needs relating to the training of personnel to serve the handicapped.

7:00 - 7:30 p.m. Response Session: TASK 3

Support staff will collect worksheets at this time in preparation for the synthesizing session on Sunday. Groups wishing to report on progress, or ask questions about content or process, will have an opportunity to do so before proceeding to the next task.

7:30 - 8:00 p.m. Focus Session: TASK 4 (All Conference participants)

Identification of personnel utilization research needs in education for the handicapped.

Leonard Burrello, Program Director for Special Education
Institute for the Study of Mental Retardation and Related Disabilities
University of Michigan

8:00 - 10:00 p.m. Small Group Interactive Workshops: TASK 4

During this time, participants will work in assigned small groups to identify, list, and prioritize research needs relating to the utilization of personnel to serve the handicapped.

At the end of this session, the support staff will collect the worksheets in preparation for the synthesis session on Sunday.

Sunday, March 9, 1975

8:30 - 9:00 a.m.	General Synthesis Session	(All Conference participants)
9:00 - 12:00 noon	Small Group Synthesis Sessions	
1:00 - 2:00 p.m.	Report Session	(All Conference participants)
2:00 p.m.	Participants Departure	

APPENDIX E

Conference Participants

	Page
Conference on Research Needs Related to Career Education of the Handicapped	65
Conference on Research Needs Related to Education of the Severely Handicapped	71
Conference on Research Needs Related to Early Childhood Education for the Handicapped	79
Conference on Research Needs Related to Personnel to Serve the Handicapped	85

Participants Attending the Conference on Research Needs Related to Career Education for the Handicapped

Harold J. Alford
Dean, College of Continuing Education
Rochester Institute of Technology
One Lomb Memorial Drive
Rochester, NY 14623

Melville Appell
Program Officer
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Margaret E. Backman
Research Supervisor
Research Unit
ICD Rehabilitation & Research Center
340 East 24th Street
New York, NY 10010

Harold R. Booher
Research Psychologist
National Highway Traffic Safety Administration
Office of Driver & Pedestrian Research
U.S. Department of Transportation
NHTSA: N-4340
Washington, DC 20590

Donn Brolin
Director, Project PRICE
Department of Counseling & Personnel Services
College of Education
6 Hill Hall
University of Missouri
Columbia, MO 65201

Herbert H. Bruce, Jr.
Director, Curriculum Development Center
College of Education
University of Kentucky
Lexington, KY 40506

Kathryn Bush
State Department of Education
231 State Office Building
Atlanta, GA 30334

E. Niel Carey
Specialist in Vocational Guidance
Division of Instruction
Maryland State Department of Education
P.O. Box 8717, BWI Airport
Baltimore, MD 21240

Mabel Evans Cason
Assistant Director of Personnel
St. Paul Public Schools
360 Colborne
St. Paul, MN 55102

Gary M. Clark
Professor of Special Education
364 Haworth Hall
University of Kansas
Lawrence, KS 66045

Julius S. Cohen
Deputy Director
Institute for the Study of Mental Retardation and Related Disabilities
University of Michigan
130 South First Street
Ann Arbor, MI 48108

Henry V. Colella
Assistant Superintendent for Special Education
BOCES Nassau County
Salisbury Center
Valentines Road & The Plain Road
Westbury, Long Island, NY 11590

John J. Cook
Coordinator, Research Design & Administration Center
Wisconsin Department of Public Instruction
126 Langdon Street
Madison, WI 53702

Eugene Cordeiro
Assistant Production Manager
Newsday
550 Stewart Avenue
Garden City, NY 11530

Chris J. De Prospo
Chairman, Department of Special Education
Southern Connecticut State College
501 Crescent Street
New Haven, CT 06515

Sal DiFrancesca
Director
The Learning Process Center
126 West Maple Street
San Diego, CA 92103

Aaron Favors
Director, Howard Center for the Study of Handicapped Children and Youth
Washington, DC 20001

Brian Fitch
National Center for Vocational Research
Ohio State University
Columbus, OH 43210

Emerson Foulke
Professor of Psychology
University of Louisville
Louisville, KY 40208

Thomas Gilhool
Professor of Law
University of Southern California Law Center
Los Angeles, CA 90007

Herbert Goldstein
Director
Curric Research & Development Center in Mental Retardation
Yeshiva University
55 5th Avenue
New York, NY 10003

Jerry D. Green
Educational Consultant
Division of Special Education
Ohio Department of Education
933 High Street
Worthington, OH 43085

Frank Hall
Indian Resources Center
Bureau of Indian Affairs
Box 1786
Albuquerque, NM 87103

Andrew S. Halpern
Project Director
Research & Training Center
Clinical Services Building
University of Oregon
Eugene, OR 97403

Donald Hawkins
Medical School
George Washington University
817 23rd Street, NW
Washington, DC 20052

Warren E. Heiss
Department of Special Education
Montclair State College
Upper Montclair, NJ 07043

Gerald L. Hitzhusen
State Recreation Specialist
Recreation & Park Administration
604 Clark Hall
University of Missouri
Columbia, MO 65201

Paul R. Hoffman
Chairman
Rehabilitation & Manpower Services
University of Wisconsin-Stout
Menomonie, WI 54751

Alan M. Hofmeister
Director, Instructional Technology Project
Special Education Department
Utah State University
Logan, UT 84322

Amanda Houston
Director, Bureau of Special Needs
State Department of Education
182 Tremont Street
Boston, MA 02111

Kenneth B. Hoyt
Director, Office of Career Education
Office of Education
Room 3100--ROB #3
7th & D Streets, SW
Washington, DC 20202

Jim Hughes
Research Analyst
System Sciences, Inc.
P.O. Box 2345
Chapel Hill, NC 27514

Robert L. Huskey
Assistant Superintendent
Department of Speech and Hearing
Special School District of St. Louis, Missouri
12110 Clayton Road
Town & Country, MO 63131

John W. Kidd
Assistant Superintendent
Department of Educable Mentally Retarded
Special School District of St. Louis, Missouri
12110 Clayton Road
Town & Country, MO 63131

Donald F. Kline
Professor and Department Head
Department of Special Education
Utah State University
Logan, UT 84322

Philip B. Knobel
Director of Special Education
Lakeland School of Walworth County
Box 88
Elkhorn, WI 53121

Harold Kulman
Director
Vocational Research Institute
1913 Walnut Street
Philadelphia, PA 19103

Mel Ladson
Program Development Branch
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Al Lampe
Director of Vocational Education for Handicapped Program
Department of Vocational Education & Technology
College of Agriculture
University of Vermont
Burlington, VT 05401

Joseph N. Lantzer
Supervisor, Educable Mentally Retarded and Severely Profoundly Mentally Retarded
Department of Education
Division of Special Education
P.O. Box 911
Harrisburg, PA 17126

Richard M. Lash
Executive Director
Suffolk Rehabilitation Center
159 Indian Head Road
Commack, NY 11725

Robert R. Lauritsen
Coordinator, Program for Deaf Students
St. Paul Technical Vocational Institute
235 Marshall Avenue
St. Paul, MN 55102

Alexander Law
Chief, Office of Program Evaluation & Research
State Department of Education
721 Capitol Mall, Room 616
Sacramento, CA 95814

Harold T. Lehto
Director of Career Education
Career & Vocational Education Department
St. Paul Public Schools
360 Colborne Street
St. Paul, MN 55102

Harry Levitt
Professor, Doctoral Program in Speech & Hearing Sciences
Graduate School and University Center
City University of New York
33 West 42nd Street
New York, NY 10036

Harry Lewis
Curriculum Coordinator
BOCES
Box 665
Johnstown, NY 12097

Dorothy MacConkey
Associate Professor and Chairman of Sociology Department
George Mason University
Fairfax, VA 22030

Daniel C. McAlees
Dean, School of Special Education & Rehabilitation
University of Northern Colorado
Greeley, CO 80639

Mary Lou McEver
Assistant Professor
Department of Rehabilitation Counseling
Box 756, Health Center
University of Florida
Gainesville, FL 32601

James T. Mancill
Division Administrator
Region XIX Education Service Center
P.O. Box 10716
El Paso, TX 79925

Gerald Manus
Associate Professor and Director of Research
Department of Special Education and Rehabilitation
Hofstra University
Hempstead, NY 11550

Muriel Manus
Business Teacher and Work Evaluation Coordinator
Vocation Rehabilitation Center
North Shore University Hospital
Community Drive
Manhasset, NY 11030

Edwin Martin
Chief
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Clifford B. Miller
Executive Director
Minnesota Commission for the Handicapped
Suite 492, Metro Square Building
St. Paul, MN 55101

Max W. Mueller
Chief, Research Projects Branch
Division of Innovation & Development
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Harold L. Munson
Professor and Chairman
The Center for the Study of Helping Services
College of Education
University of Rochester
River Campus Station
Rochester, NY 14627

Carson Y. Nolan
Director, Educational Research
American Printing House for the Blind
P.O. Box 6085
1839 Frankfort Avenue
Louisville, KY 40206

Robert P. Overs
Research Director
Research Department
Curative Workshop of Milwaukee
10437 West Watertown Plank Road
Milwaukee, WI 53226

Allen Phelps
Bureau of Educational Research
284 Education Building
University of Illinois
Urbana, IL 61801

Harold R. Phelps
Chairman, Department of
Special Education
Illinois State University
Normal, IL 61761

Herbert J. Prehm
Professor, Special Education
215 Education
University of Oregon
Eugene, OR 97403

Joan Ratteray
RAND Corporation
2100 M Street, NW
Washington, DC 20037

Sumner Rotman
Associate Director of Planning,
Management & Research
New Bedford Area Center for
Human Services, Inc.
P.O. Box A-2097
New Bedford, MA 02740

Ran Sankovsky
Director of Training
Research & Training Center
West Virginia Rehabilitation
Center
Institute, WV 25112

Raphael F. Simches
Director, State Education
Department
Division for Handicapped
Children
55 Elk Street
Albany, NY 12234

Wesley Simonson
Research Assistant--SERVE
Special Education
#916 Area Vocational Technical
Institute
3300 Century Avenue, North
White Bear Lake, MN 55110

Asher Soloff
Research Director
Jewish Vocational Service
1 South Franklin Street
Chicago, IL 60606

Kirk M. Sorensen
Director of Research
Office of State Board of
Education
State of Idaho
Boise, ID 83720

Alan Stewart
Director of Research
Deafness Training & Research
Center
New York University
80 Washington Square, East
New York, NY 10003

Merle E. Strong
Professor, Department of
Educational Administration
and Director, Center for
Studies in Vocational &
Technical Education
University of Wisconsin
1025 West Johnson
Madison, WI 53706

E. Ross Stuckless
Director, Office of Education
Extension
National Technical Institute
for the Deaf
One Lomb Memorial Drive
Rochester, NY 14623

Richard Switzer
Headmaster
Human Resources Center
Albertson, NY 11507

Margo Thornley
National Advisory Council of
Vocational Education
15314 Beach Drive, NE
Seattle, WA 98155

Arden Thorum
Olympus Research Corporation
1685 Chevy Chase Drive
Brea, CA 92621

Stanley R. Traxler
Associate Dean
Center for General Studies
Seattle Central Community
College
1718 Broadway
Seattle, WA 98122

Raymond J. Trybus
Director, Office of Demographic
Studies
Gallaudet College
7th and Florida Avenue, NE
Washington, DC 20002

Peter Verhoven
National Recreation & Parks
Association
1601 North Kent Street
Arlington, VA 22209

Darrell L. Ward
Coordinator, Career Education
Personnel Development
State Department of Education
942 Lancaster Drive
Salem, OR 97310

Everett R. Warzecha
Director, Mobile Occupational
Development Education
Laboratories
173 Chelmsford Street
Chelmsford, MA 01824

Susan T. Wood
County Career Education
Coordinator
Essex County Department of
Education
State Department of Education
90 Washington Street
East Orange, NJ 07017

Participants Attending the Conference on Research Needs Related to Education of the Severely Handicapped

Harold J. Abrams
Director, Oakland Schools Division
Oakland Training Institute
2338 Coolidge Highway
Berkley, MI 48072

Reuben Altman
Coordinator, Programs in Mental Retardation
Department of Special Education
University of Missouri-Columbia
515 South Sixth Street
Columbia, MO 65201

Samuel C. Ashcroft
Director, National Center on Educational Media and Materials for the Handicapped
The Ohio State University
220 West 12th Avenue
Columbus, OH 43210

Donald Ashurst
Superintendent, Diagnostic School for Neurologically Handicapped Children, Southern California
4339 State University Drive
Los Angeles, CA 90032

Victor Baldwin
Model Programs for Severely Handicapped
789 North Craven
Monmouth, OR 97361

Isaura D. Barrera
Instructional Consultant, Deaf-Blind Project
Department of Special Education
Education Service Center, Region 20
1550 N.E. Loop 410
San Antonio, TX 78209

G. Thomas Bellamy
Coordinator of Specialized Training Program
College of Education
University of Oregon
Eugene, OR 97403

Mary Jane Billinger
Chief, Education and Training
Northern Virginia Training Center
9901 Braddock Road
Fairfax, VA 22030

William A. Blea
Project Director
Department of Education
Southwestern Region Deaf-Blind Center
1500 5th Street, Room 325
Sacramento, CA 95814

David Boesel
Research Associate
Research Division
National Institute of Education
1200 19th Street, NW
Washington, DC 20208

L. Adlai Boyd
Supervisor, Special Education
Woodhaven Center of Temple University
2900 Southampton Road
Philadelphia, PA 19122

Diane D. Bricker
Administrator, Debbie School
P.O. Box 520006, Biscayne Annex
Miami, FL 33152

Lou Brown
Associate Professor
Department of Studies in Behavioral Disabilities
427 Education Building
University of Wisconsin
Madison, WI 53706

Lil Browning
Community Services Counselor
Tarrant County Services for the Hearing Impaired
4316 Lambeth Lane
Fort Worth, TX 76103

Keith Brownsmith
Assistant Director
Department of Special Education
Center for Innovation in Teaching
the Handicapped
2805 East 10th Street
Bloomington, IN 47401

James F. Budde
Director, Kansas University, U.A.F.
Bureau of Child Research
351 Haworth
University of Kansas
Lawrence, KS 66044

Milton Budoff
Director
Research Institute for Educational
Problems, Inc.
29 Ware Street
Cambridge, MA 02138

Pat Cook
Project Director
Abt Associates, Inc.
55 Wheeler Street
Cambridge, MA 02138

T. Timothy Crowner
Coordinator of Special Education
Madison Public Schools
501 East Badger Road
Madison, WI [illegible]713

Flora M. Daly
648 N Street
Sacramento, CA 95814

Robert Dantona
Bureau of Education for the
Handicapped
ROB #3, Room 2314
Washington, DC 20202

Khogendra Das
New York Institute for the
Education of the Blind
999 Pelham Parkway
Bronx, NY 10469

Carl J. Davis
Department Head
Psychology and Guidance Department
Perkins School for the Blind
175 North Beacon Street
Watertown, MA 02172

Murdina M. Desmond
Director, Leopold Meyer Center
for Developmental Pediatrics
Professor of Pediatrics and
Community Medicine
Department of Pediatrics
Baylor University College of
Medicine
Houston, TX 77025

Richard B. Dever
Associate Professor of Education
Department of Special Education,
US 170
Indiana University
Bloomington, IN 47401

Deborah Diamond
Program Coordinator-Director
Development, Improvement Programs
Teaching Resource Center
CUNY, RRC #10
144 West 125 Street
New York, NY 10027

Leonard Diller
Chief, Behavioral Sciences
Department of Rehabilitation
Medicine
New York University School of
Medicine
400 East 34th Street
New York, NY 10016

Marvin Efron
Visiting Associate Professor
College of Education
University of South Carolina
Columbia, SC 29208

Joseph Fenton
Chief, Special Centers
HEW, Rehabilitation Services
Administration
Room 3211, Mary E. Switzer Building
330 C Street, SW
Washington, DC 20201

John W. Filler Jr.
Research Scientist
Illinois State Pediatric Institute
1640 West Roosevelt Road
Chicato, IL 60608

Charles Forgnone
Coordinator, Special Education
Administration Program
College of Education
University of Florida
Gainesville, FL 32601

James G. Foshee
Professor
Department of Special Education
College of Education
Florida State University
Tallahassee, FL 32306

Ray E. Foster
Educational Innovations Section
State Department of Education
219 West Jefferson
Tallahassee, FL 32303

George H. Friedlander
Director of Special Services
Shield Institute for Retarded
Children
1800 Andrews Avenue
Bronx, NY 10453

Charles Galloway
Director, Developmental and
Vocational Services
Eastern Nebraska Community Office
of Retardation
116 South 42nd Street
Omaha, NE 68131

Marc Gold
Research Associate Professor
Children's Research Center
University of Illinois
South First Street Road
Champaign, IL 61820

Elizabeth M. Goodman
Consultant, Education Programs
for Multi-Handicapped
2948 Macomb Street, NW
Washington, DC 20008

Ronnie Gordon
Director, Pre-school Developmental
Programs and Associate Professor
of Clinical Rehabilitation Medicine
Institute of Rehabilitation
New York University Medical Center
400 East 34th Street
New York, NY 10016

Michael Guralnick
Director of Research
National Children's Center
6200 Second Street, NW
Washington, DC 20011

Edwin K. Hammer
Project Director
South Central Regional Center
for Services to Deaf-Blind
Children
Callier Center for Communication
Disorders
1966 Inwood Road
Dallas, TX 75235

Verna Hart
Department of Special Education
College of Education
University of Pittsburgh
4616 Henry Street
Pittsburgh, PA 15213

Wanda Lee Hartman
Associate Professor
Department of Special Education
Oral Roberts University
7777 South Lewis
Tulsa, OK 74102

Alice H. Hayden
Associate Director, Experimental
Education Unit
Child Development & Mental
Retardation Center
University of Washington
Seattle, WA 98195

Laird W. Heal
Associate Professor of Social
Work
Graduate School of Social Work
University of Texas at Arlington
Arlington, TX 76011

Elsie D. Helsel
Coordinator of Special Education
College of Education
Ohio University
Athens, OH 45701

Robert Herman
Acting Associate Deputy Commissioner
Bureau of Education for the
Handicapped
ROB #3
Washington, DC 20202

Janis A. Jelinek
Project Director-Project TAPP
Speech Pathology/Audiology
Department
University of Wyoming
Box 3224 University Station
Laramie, WY 82071

John L. Johnson
Acting Director
Hillcrest Children's Center
1325 W Street, NW
Washington, DC 20011

William E. Johnston Jr.
Bureau of Education for the
Handicapped
ROB #3
Washington, DC 20202

Ingo Keilitz
Director of Research
Division of Research
Special School District of
St. Louis County
12110 Clayton Road
Town & Country, MO 63131

Martin C. Kennedy
Coordinator, Deaf-Blind
Pre-School
Child Study Center
Oklahoma Children's Memorial
Hospital
214 East Madison
Oklahoma City, OK 73105

Frank S. King
Leadership Training Institute
Department of Special Education
College of Education
University of Arizona
Tucson, AZ 85721

Betty J. Kolstoe
Associate Professor
Coordinator, Department of
Multi-handicapped
School of Special Education
University of Northern Colorado
Greeley, CO 80639

Ina Kurzhals
Curriculum Director
The Utah School for the Blind
742 Harrison Boulevard
Ogden, UT 84404

Larry Larsen
Director, Psychology, Education &
Research
Western Carolina Center
Enola Road
Morganton, NC 28655

Henry Leland
Professor of Psychology
Nisonger Center
Ohio State University
Columbus, OH 43210

James Lent
Parsons State Hospital &
Training Center
Parsons, KS 67357

Michael Lewis
Senior Research Psychologist
Institute for the Study of Human
Development
Educational Testing Service
and
Clinical Professor of Pediatrics
Columbia University Medical Center
New York, NY 10025

Lyle Lloyd
Health Scientist Administrator
for Communication Disorders
Mental Retardation Program
National Institute of Child Health
and Human Development
National Institutes of Health
C704 Landow Building
Bethesda, MD 20014

Ruby Luna
Director, Experanza Model Program
for Severely Handicapped Children
P.O. Box 12212
Albuquerque, NM 87105

Floyd E. McDowell
Principal
Meadowood School
55A South Meadowood Drive
Newark, DE 19711
and
Program Director
Keystone Learning Center
Human Development Resources
1834 Meetinghouse Road
Boothwyn, PA 19061

Elizabeth Maloney
Assistant Executive Director
Industrial Home for the Blind
57 Willoughby Street
Brooklyn, NY 11201

Mary Ann Mariani
Educational Coordinator
South Central Regional Center for Services to Deaf-Blind Children
Callier Center for Communication Disorders
1966 Inwood Road
Dallas, TX 75235

Jerry A. Martin
Assistant Professor
Department of Physical Medicine and Rehabilitation
860 Mayo, Box 297
University of Minnesota
Minneapolis, MN 55455

Stanley Mopsik
Director, Office of Special Education Programs
Division of Special Education
Maryland State Department of Education
P.O. Box 8717, BWI Airport
Baltimore, MD 21240

Max W. Mueller
Chief, Research Projects Branch
Division of Innovation & Development
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

David Nathanson
Assistant Professor
Psycho-Educational Services
Florida International University
Tamiami Trail
Miami, FL 33157

Joseph J. Parnicky
Nisonger Clinic
Ohio State University
Columbus, OH 43210

William D. Power
Director, Rehabilitation Services
Easter Seal Society
14 Somerset Street
Boston, MA 02108

Mary Anne Price
Research Associate
Project PADRE
Council for Exceptional Children
1920 Association Drive
Reston, VA 22091

Joann M. Ray
Department of Special Education
George Peabody College
Box 326
Nashville, TN 37204

Barbara A. Reid
Director of Special Programs
Department of Student Development
Santa Fe Community College
P.O. Box 1530
Gainesville, FL 32601

Ferne K. Roberts
Acting Coordinator
Department of Special Education
Hunter College
466 Lexington Avenue
New York, NY 10017

Philip Roos
Executive Director
Department of Executive Direction
National Association for Retarded Citizens
P.O. Box 6109
Arlington, TX 76011

Steven L. Savage
Program Coordinator
Developmental Training Center
Indiana University
2853 East 10th Street
Bloomington, IN 47401

Charles D. Schoenwetter
Assistant Professor
Department of Family Health Service
University of Wisconsin
1552 University Avenue
Madison, WI 53706

Virginia Sears
Administrative
Experanza Model Program for
Severely Handicapped Children
P.O. Box 12212
Albuquerque, NM 87105

David E. Shearer
Project Director
Portage Project
Cooperative Educational Service
Agency 12
P.O. Box 564
Portage, WI 53901

Edward Sontag
Branch Chief
Health, Education & Welfare
Office of Education
7th & D Streets, SW
Washington, DC 20202

Charles R. Spellman
Project MESIT
Department of Special Education--
Human Development
Bureau of Child Research
Parsons State Hospital & Training
Center
Parsons, KS 67357

John M. Stamm
Assistant Professor of Special
Education
Director of Professional Training
Programs for the Severely
Handicapped
Department of Special Services
University of Oregon
Eugene, OR 97405

Robert Stillman
Research Scientist and Consultant
for Research
Research Division and Regional
Center for the Deaf-Blind
Callier Center for Communication
Disorders
1966 Inwood Road
Dallas, TX 75235

Timothy G. Sullivan
Director, Bureau of Programs and
Services
Office of Mental Retardation
Department of Public Welfare
Room 408, Health & Welfare
Building
Harrisburg, PA 17120

James W. Tawney
Project Director, Programmed
Environments and Telecommunications
Department of Special Education
University of Kentucky
Lexington, KY 40506

Marianne Tracey
Project Specialist
Bureau of Day Training
Division of Mental Retardation
169 West Hanover Street
Trenton, NJ 08625

Kathryn Turiansky
Box 158
Wallingford, VT 05773

Lawrence J. Turton
Research Program Associate
Institute for the Study of Mental
Retardation and Related
Disabilities
University of Michigan
130 South First Street
Ann Arbor, MI 48108

Richard Umansky
Director, Northern California
Regional Child Development
Center
Children's Hospital
51st & Grove Streets
Oakland, CA 94609

Gregg C. Vanderheiden
Director
Cerebral Palsy Communication
922 ERB
University of Wisconsin-Madison
Madison, WI 53706

Roger C. Walker
Director
New York Institute for the Education
of the Blind
999 Pelham Parkway
Bronx, NY 10469

Don Welch
Principal, Special Education
Office of Los Angeles County
Superintendent of Schools
4400 North Roxburgh
Covina, CA 91722

Participants Attending the Conference on Research Needs Related to Early Childhood Education for the Handicapped

Paul Ackerman
Chief, Program Development Branch
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Patricia G. Adkins
Director of Early Childhood
Early Childhood Learning Center
1308 Zuni
P. O. Box 10716
El Paso, TX 79997

Slagel Albritten
Planning Officer
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Nicholas Anastasiow
Director
Institute for Child Study
Indiana University at Bloomington
Bloomington, IN 47401

Bernard A. Banet
Director, Preschool Department
High/Scope Educational Research Foundation
Ypsilanti, MI 48197

Tina Bangs
Director, Speech & Hearing Center Institute
1343 Moursund Avenue
Austin, TX 77025

Harry Bornstein
Research Professor of Psychology and Director of Preschool English Project
Department of Psychology
Gallaudet College
Washington, DC 20002

Joni Y. Cohan
Head Start Information Project
Council for Exceptional Children
1920 Association Drive
Reston, VA 22091

Shirley Cohen
Director, Special Education Development Center
Hunter College
City University of New York
560 Lexington Avenue
New York, NY 10022

Frances P. Connor
Chairman, Department of Special Education
Teachers College
Columbia University
New York, NY 10027

Gladys H. Crawford
Consultant, Programs for Hearing Impaired
Bureau of Education for Exceptional Students
Florida Department of Education
319 Knott Building
Tallahassee, FL 32304

Christine Davis
Research Associate
Study Project on Social Research & Development
National Academy of Sciences/National Research Council
2101 Constitution Avenue JH811
Washington, DC 20418

Monica Deubel
Project Manager-Major Cities Project
Pupil Personnel Services
Toledo Public Schools
Manhattan and Elm
Toledo, OH 43608

Paul R. Dokecki
Department of Psychology
George Peabody College
Nashville, TN 37203

Mary K. Dykes
Assistant Professor of Special Education
Norman Hall 43
College of Education
University of Florida
Gainesville, FL 32611

M. Winston Egan
Assistant Professor
Department of Special Education
219 Milton Bennion Hall
University of Utah
Salt Lake City, UT 84106

Rose C. Engel
Principal
Sophia T. Salvin Elementary School
1925 Budlong Avenue
Los Angeles, CA 90007

Gene England
President
Behavioral Sciences Institute
72 Fern Canyon Road
Carmel, CA 93921

Charles H. Epps, Jr.
Chief, Juvenile Amputee Clinic
Handicapped Children's Unit
District of Columbia General Hospital
2018 Georgia Avenue, NW
Washington, DC 20001

Roselyn P. Epps
Chief, Maternal & Child Health
Crippled Children's Division
1875 Connecticut Avenue, NW, Room 807
Washington, DC 20001

Joyce Evans
Acting Director
Early Childhood Program
Southwest Educational Development
Laboratory
211 East Seventh Street
Austin, TX 78701

David J. Franks
Assistant Professor and Coordinator of
Early Childhood Training Programs
Department of Special Education
University of Wisconsin at Whitewater
Whitewater, WI 53190

Bruce Fraser
Department of Special Education
Boston University
Boston, MA 02215

Harold D. Fredericks
Research Professor
Exceptional Child Research Program
Teaching Research
Oregon College of Education
Monmouth College, OR 97361

Eliot Freidson
Professor of Sociology
Department of Sociology
New York University
New York, NY 10003

Anne W. Gale
Tutor for Special Education
Toledo Public Schools
7612 Wyndham Court
Sylvania, OH 43560

Ernest A. Gotts
Program Area Director
Early Education for Handicapped
Department of Special Education
University of Texas at Austin
Austin, TX 78712

Richard H. Granger
Associate Professor of Clinical
Pediatrics
Yale University Child Study Center
333 Cedar Street
New Haven, CT 06510

Charles Greenwood
Research Associate
The Center on Human Development
CORBEH
1590 Willamette Street
Eugene, OR 97403

Michael Guralnick
Director of Research and
Experimental Preschool
National Children's Center
6200 Second Street, NW
Washington, DC 20011

James Hamilton
Education Research Specialist
Division of Innovation & Development
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Andrew E. Hayes
Research Associate & Assistant Professor
Technical Assistance Development System
University of North Carolina
625 West Cameron Avenue
Chapel Hill, NC 27514

Kathryn B. Horton
Chief of the Language Development Programs
Bill Wilkerson Hearing & Speech Center
114 19th Avenue, South
Nashville, TN 37212

Marvin Hunter
Associate Director
Shield Institute for Retarded Children
1800 Andrews Avenue
Bronx, NY 10453

Robert L. Huskey
Assistant Superintendent
Department of Speech and Hearing
Special School District of St. Louis County, Missouri
12110 Clayton Road
Town & Country, MO 63131

James Jenkins
Director of Early Childhood Education
Department of Public Instruction
State Department of Public Instruction
Raleigh, NC 27611

Wayne Johnson
Department of Special Education
114 Bradley Hall
University of Kentucky
Lexington, KY 40506

George A. Kahdy
Deputy Assistant Superintendent for Program Services
Department of Public Instruction
North Carolina Department of Education
Raleigh, NC 27611

Jenny W. Klein
Director of Educational Services
Office of Child Development
P. O. Box 1182
Washington, DC 20013

Clarita A. King
Director of the Parent Training Project
Western Carolina Center
Enola Road
Morganton, NC 28655

Edward LaCrosse
Associate Director
Meyer Children's Rehabilitation Institute
University of Nebraska Medical Center
444 South 44th Street
Omaha, NE 68131

Terry L. Lawrence
Professor of Special Education
Coordinator of Preschool Training
Special Education Department
Southern Connecticut State College
New Haven, CT 06515

David L. Lillie
Director of TADS
Associate Professor of Special Education
University of North Carolina
625 West Cameron
Chapel Hill, NC 27514

Donald Longenecker
Professor and Director
Child Development Center
Trenton State College
Pennington Road
Trenton, NJ 08625

Christy L. Ludlow
Research Speech Pathologist
National Institute of Neurological Diseases and Stroke
Building 36, Room 4A23
Bethesda, MD 20014

Edwin W. Martin
Chief
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Barbara McKillop
Director, Behavior Modification Program
Office of Mental Retardation
Connecticut State Department of Health
Bridgeport Regional Center
115 Virginia Avenue
Bridgeport, CT 06610

James McLean
George Peabody College
Nashville, TN 37203

Kathryn P. Meadow
Associate Professor of Sociology
Department of Psychiatry
Mental Health Services for the Deaf
University of California
474 5th Avenue
San Francisco, CA 94143

John H. Meier
Associate Professor of Pediatrics,
Psychiatry and Education and
Director of JFK Child Development Center
University of Colorado Medical Center
4200 East 9th Street
Denver, CO 80220

Samuel J. Meisels
Director, Eliot-Pearson Children's
School
Department of Child Studies
Tufts University
105 College Avenue
Medford, MA 02155

Paula Menyuk
Professor of Psycholinguistics
Boston University
264 Bay State Road
Boston, MA 02215

William J. Meyer
Professor of Psychology
Department of Psychology
Huntington Hall
Syracuse University
Syracuse, NY 13214

Martha S. Moersch
Project Director, Early Intervention
Project
Institute for Study of Mentally
Retarded & Related Disabilities
University of Michigan
130 South First Street
Ann Arbor, MI 48108

Arthur J. Moreau
Director of United Cerebral Palsy
Allied Agencies
320 East Armstrong
Peoria, IL 61603

Melvin G. Moore
Research Assistant
TADS
University of North Carolina
Chapel Hill, NC 27514

Max W. Mueller
Chief, Research Projects Branch
Division of Innovation & Development
Bureau of Education for the
Handicapped
ROB #3
Washington, DC 20202

Winifred H. Northcott
Consultant, Early Childhood Education
for the Handicapped
Special Education Section
Department of Education
Capitol Square, 550 Cedar Street
St. Paul, MN 55101

Peter O'Connor
Department of Special Education
University of North Carolina
Chapel Hill, NC 27514

Ura Jean Oyemade
Acting Chairman
Program in Human Development
School of Human Ecology
Howard University
Washington, DC 20059

Marilyn Parsley
Supervisor, Management Services
Special Education Unit
Colorado Department of Education
State Office Building, Room 403
Sherman & Colfax
Denver, CO 80203

Margaret Pearson
Educational Specialist
Tennessee Department of Education
Box 5156, T.T.U.
Cookeville, TN 38501

Gretchen M. Phair
306 Westmoreland Boulevard
Madison, WI 53705

Lorene C. Quay
Professor of Early Childhood Education
Georgia State University
Atlanta, GA 30303

Alton D. Quick
Department of Special Education
& Rehabilitation
Memphis State University
Memphis, TN 38152

Marian Rejent
Associate Professor of Pediatrics
Medical College of Ohio
Toledo, OH 43614

R. Robert Rentz
Director, Educational Research Laboratory
108 Pain Hall
University of Georgia
Athens, GA 30602

Bonney Resmini
Educational Coordinator
Easter Seal Society
14 Somerset Street
Boston, MA 02108

George Rosinger
Manager, Education and Social Sciences
Research Section
Battelle-Columbus Laboratories
505 King Avenue
Columbus, OH 43201

Claire Salant
Project Director, Infant Program
and Principal Rehabilitation School
159 Indian Head Road
Commack, NY 11725

Anne R. Sanford
Director, Chapel Hill Training-Out-
Reach Project
Chapel Hill Carrboro City School
System
Lincoln Center
Merritt Mill Road
Chapel Hill, NC 27514

Virginia C. Shipman
Senior Research Psychologist
Chairman, Early Learning &
Socialization Group
Educational Testing Service
Princeton, NJ 08540

Irving Sigel
Senior Research Psychologist &
Director, Center for Child Care
Research
Institute for Research in Human
Development
Educational Testing Service
Princeton, NJ 08540

Audrey Simmons-Martin
Professor of Education of the Deaf
Washington University
and
Director of Parent-Infant Program
Central Institute for the Deaf
818 South Euclid
St. Louis, MO 63110

Betty H. Simms
Professor and Acting Chairman
Special Education
University of Maryland
College Park, MD 20742

Russell C. Siraguse
Director, Bureau of Education
New York State Department of Mental
Health
44 Holland Avenue
Albany, NY 12229

G. Harold Smith
Southwest Georgia Program for
Exceptional Children
P. O. Box 110-A
Ochlocknee, GA 31773

Marguerite Smith
Director, Infant Development Unit
Ward C, 2nd Floor
Boston City Hospital
790 Harrison Avenue
Boston, MA 02118

Miriam Sour
Director of Early Childhood Programs
School District #9
1377 Jerome Avenue
Bronx, NY 10452

William W. Swan
Project Director
Rutland Center
Psychoeducational Center
698 North Pope Street
Athens, GA 30601

Annette Tessier
Associate Professor
Department of Special Education
California State University
515 State University Drive
Los Angeles, CA 90032

Arden R. Thorum
Olympus Research Corporation
1685 Chevy Chase Drive
Brea, CA 92621

Otilia V. Vidaurri
Director of Special Education
Edgewood Independent School District
5358 West Commerce Street
San Antonio, TX 78237

Lisbeth J. Vincent
Training & Program Coordinator
Specialized Educational Services
Badger School
501 East Badger Road
Madison, WI 53713

E. Elaine Vowels
Director
Speech Pathology & Audiology Department
Children & Youth Project
Department of Human Resources
4130 Hunt Place, NE
Washington, DC 20019

Carol J. Vukelich
Assistant Professor
Curriculum & Instruction
University of Delaware
Newark, DE 19711

Robert Walling
Internal Research & Evaluation
Office of Child Development
Box 1182
Washington, DC 20013

Clarence Williams
Associate Dean for Research
Graduate School
Gallaudet College
Washington, DC 20002

Mary M. Wood
Associate Professor of Special Education
University of Georgia
and
Director, Early Childhood Project
Rutland Center
698 North Pope Street
Athens, GA 30601

Robert Worthington
Consultant
67 Perry Drive
West Trenton, NJ 08628

Suzan Wynne
Co-Director
Wynne Associates
3804 Legation Street, NW
Washington, DC 20015

Participants Attending the Conference on Research Needs Related to the Development of Personnel to Serve the Handicapped

James A. Apffel
Acting Chairman
Department of Special Education
University of Hawaii
1776 University Avenue, UA1-1A
Honolulu, HI 96822

R. Bruce Baum
Assistant Professor
Exceptional Children Education Division
Ketchum Hall 210
State University College at Buffalo
1300 Elmwood Avenue
Buffalo, NY 14222

June L. Bigge
Area Coordinator for Crippled and Other Health Impaired
Department of Special Education
1600 Halloway
San Francisco State University
San Francisco, CA 94132

A. Edward Blackhurst
Chairman, Department of Special Education
224 Taylor Education Building
University of Kentucky
Lexington, KY 40506

Theodore A. Bravos
Associate Professor
State University of New York at Albany
and
Deputy Director
Department of Mental Hygiene
Wilton Developmental Center
Wilton, NY 12866

Robert G. Bruce
Consultant
Granville Associates
1629 K Street, N. W., #520
Washington, DC 20006

Philip J. Burke
Chief, Comprehensive Programs & Special Projects Branch
Bureau of Education for th Handicapped
ROB #3, Room 2109
Washington, DC 20202

Leonard Burrello
Program Director for Special Education
Institute for the Study of Mental Retardation & Related Disabilities
University of Michigan
Ann Arbor, MI 48104

Hilda Caton
Research Scientist
Special Office for the Visually Handicapped
American Printing House for the Blind
1839 Frankfort Avenue
Louisville, KY 40207

Patricia Cegelka
Assistant Professor
Department of Special Education
University of Kentucky
Lexington, KY 40506

Bernard L. Charles
Professor, Urban Teacher Education
Livingston College
Rutgers--The State University
New Brunswick, NJ 08903

Stephen Checkon
Supervisor, Evaluation and Research
Mark Twain School
Montgomery County Public Schools
14501 Avery Road
Rockville, MD 20853

Jonas Chenault
Assistant Professor
Department of Special Education
School of Education, 2030 M
University of Michigan
Ann Arbor, MI 48104

Roy A. Clifford
Consultant
Texas Institute of Rehabilitation and Research
Presidenc
Interaction, Inc.
3802 Las Palmas Drive
Houston, TX 77027

John E. Davis
Research Coordinator
Division of Innovation & Development
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

John E. deJung
Research Professor
Division of Developmental Studies
College of Education
University of Oregon
Eugene, OR 97403

Richard B. Dever
Associate Professor of Education
Department of Special Education
170 U-School
School of Education
Indiana University
Bloomington, IN 47401

Daniel J. Dobbert
Research Associate
Department of Educational Administration
300 Health Service Building
University of Minnesota
St. Paul, MN 55108

Charles R. Doty
Advisor in Technical Education of
Vocational-Technical School of
Education
Graduate School of Education
Rutgers--The State University
New Brunswick, NJ 08903

Joseph Eisenbach
Professor and Head
Department of Special Education
Western Michigan University
Kalamazoo, MI 49001

Robert L. Erdman
Professor and Chairperson
Department of Special Education
University of Utah
Salt Lake City, UT 84112

Meredith D. Gall
Visiting Professor
Department of Curriculum and Instruction
University of Oregon
Eugene, OR 97403

Jean S. Garvin
Director of Special Education
Vermont State Department of
Education
State Office Building
Montpelier, VT 05602

Cynthia A. Gilles
Coordinator, Special Education
Manpower and Training
Executive Office of Education
Affairs
Commonwealth of Massachusetts
18 Tremont Street
Boston, MA 02108

Barry Griffing
Assistant Superintendent of Public
Instruction
California Department of Education
701 Capitol Mall
Sacramento, CA 95814

Hans Hahn
Professor
Department of Special Education
Wisconsin State Universtiy--Whitewater
Whitewater, WI 53190

Leonard Hall
Assistant Commissioner for Special
Education
Department of Elementary and Secondary
Education
State Department of Education
Jefferson City, MO 65101

Robert Harth
Associate Professor
Department of Special Education
University of Missouri at Columbia
Columbia, MO 65201

Hyrum S. Henderson
Associate Professor
Department of Special Education
Utah State University
Logan, UT 84322

Paul G. Hill
Professor, Human Learning & Development
and
University Advocate
Governors State University
Park Forest South, IL 60466

George A. Isaac
Doctoral Candidate
Department of Vocational-Technical
School of Education
Graduate School of Education
Rutgers--The State University
New Brunswick, NJ 08903

Offa Lou Jenkins
Professor of Education
Special Education Program
Marshall University
Huntington, WV 25701

Roger Kroth
Associate Professor
Department of Special Education
College of Education
University of New Mexico
Albuquerque, NM 87106

Donald Linkowski
Chairman and Associate Professor
of Education
George Washington University
2201 G Street, N. W., #514
Washington, DC 20052

Merrie McConnell
Coordinator
Teacher Development Center
Department of Special Education
Edgewood School District
5358 West Commerce
San Antonio, TX 78237

Frederick J. McDonald
Executive Director
National Commission on
Performance-Based Education
and
Senior Research Psychologist
Chairman, Teacher Behavior Research
Division of Educational Studies
Educational Testing Service
Princeton, NJ 08540

Hugh S. McKenzie
Director, Center for Special
Education
and
Professor of Special Education
University of Vermont
2 Colchester Avenue
Burlington, VT 05401

Kenneth F. McLaughlin
Education Program Specialist
Bureau of Education for the Handicapped
ROB #3, Room 2012
Washington, DC 20202

Melton C. Martinson
Department of Special Education
University of Kentucky
Lexington, KY 40506

Edward Meyen
Department of Special Education
School of Education
University of Kansas
Lawrence, KS 66045

J. Donald Monroe
Assistant Professor
Department of Special Education
University of South Dakota
Vermillion, SD 57069

William Moore
Associate Research Professor
Teaching Research
Monmouth, OR 97361

Max W. Mueller
Chief, Research Projects Branch
Division of Innovation & Development
Bureau of Education for the Handicapped
ROB #3
Washington, DC 20202

Ronald Murphy
Assistant Professor
Montclair State College
Montclair, NJ 07043
and
Consultant to Center for Occupational
and Professional Assessment
Educational Testing Service
Princeton, NJ 08540

Kenneth Nash
Director, Office of Professional
Development
National Technical Institute for the
Deaf
Rochester, NY 14623

Otis Nelson
Chairman, Department of Special Education
Central State University
Wilberforce, OH 45384

Mauderie Saunders
Coordinator of Special Education
School of Education
Howard University
Washington, DC 20001

Dorothy Semmel
Center for Innovation in Teaching
the Handicapped
University School
Indiana University
2805 East 10th Street
Bloomington, IN 47401

Margaret Jo Shepherd
Associate Professor
Department of Special Education
Teachers College
Columbia University
Box 223
New York, NY 10027

Richard Shores
Associate Professor
Department of Special Education
George Peabody College
Nashville, TN 37203

Wilber D. Simmons
Coordinator, Administration Programs
and Gifted Programs
Department of Special Education
401 Educational Building
Kent State University
Kent, OH 44242

Howard H. Spicker
Professor
Department of Special Education
Indiana University
2805 East 10th Street, Suite 170
Bloomington, IN 47401

Julian U. Stein
Consultant
Programs for Handicapped
American Alliance for Health,
Physical Education, Recreation
1201 16th Street, N. W.
Washington, DC 20036

Beth Stephens
Professor
Department of Special Education
Temple University
Philadelphia, PA 19122

Robert Stevenson
Project Director
Council for Exceptional Children
1920 Association Drive
Reston, VA 22091

Stanley W. Stocker
Counseling Psychologist
Chief, Counseling & Rehabilitation
Section
Veterans Administration
4818 Rollingtop Road
Ellicott City, MD 21043

Lloyd W. Tindall
Research Associate
Center for Studies in Vocational
and Technical Education
321 Old Education Building
University of Wisconsin--Madison
Madison, WI 53706

Robert Urie
Director of Rehabilitation and
Counseling Services
St. Andrews Presbyterian College
Laurinburg, NC 28352

Margaret R. Walkenshaw
School Psychologist
Department of Special Education
Shawnee Mission Public Schools
5005 West 95th Street
Shawnee Mission, KS 66207

Betty Ward
Associate Laboratory Director for
Teaching
Far West Regional Laboratory for
Educational Research and Development
1855 Folsom Street
San Francisco, CA 94103

Don Weston
Director of Special Education
Development
Department of Special Education and
Special Schools
Texas Education Agency
201 East 11th
Austin, TX 78701

Irwin Wexner
Headmaster
Adams School
248 East 31st Street
New York, NY 10001

Lillian Wexner
Co-Chief Psychologist
Adams School
248 East 31st Street
New York, NY 10001

Gloria F. Wolinsky
Professor of Education
Hunter College of the
City University of New York
695 Park Avenue
New York, NY 10021

Frank H. Wood
Professor and Coordinator
Special Education Programs
University of Minnesota
Minneapolis, MN 55455

Naomi Zigmond
Associate Professor
Department of Special Education
University of Pittsburgh
4616 Henry Street
Pittsburgh, PA 15213

APPENDIX F

Report of the Steering Committee for the
Conference on Research Needs Related to
Education of the Severely Handicapped

REPORT OF THE STEERING COMMITTEE

Conference on Research Needs Related to Education of the Severely Handicapped

In September of 1974, when the Steering Committee of the Conference on Research Needs Related to Education of the Severely Handicapped first met in Washington at the invitation of the Bureau for the Education for the Handicapped, many members were skeptical about the potential benefits of such an activity. According to the BEH and Educational Testing Service personnel, one hundred of the "finest minds" in the area of severely handicapped were to be invited to attend a two-day conference at which they would work around the clock to develop a list of research priorities which could be used to guide the Bureau's efforts on behalf of the education of the severely handicapped for the next five years. Participants were to include a mixture of researchers and practitioners. The committee was to generate a list of participants, develop a conference format to insure productivity, and generally lead participants through the planned format.

However, skepticism about the conference appears to have been unjustified. Represented in the proceedings of this conference are the sum product of more than 4,500 man-hours of concentrated effort by the participants. That such efforts were expended on this project may be seen as a field response to what the various participants perceived as a very positive and appropriate movement toward the development of more relevant research patterns on the part of the Bureau.

Particularly heartening to the participants was the fact that the severely handicapped were picked as one of the important target populations for which relevant research must be planned and integrated into future BEH activities. In addition, the participants were delighted with the responses of the BEH staff to the highly practical applied research projects which constituted the many recommendations generated by the conference.

Several issues arose during the conference which deserve particular attention. Perhaps the most pressing of these was one of clear definition. Marc Gold and Philip Roos, in focus presentations, both stressed that there is no functional floor to the category of severely handicapped. Although participants were able to identify a variety of individuals or groups who could be considered severely handicapped, a clear and succinct definition eluded the conference. A clear definition and some standard terminology would be most valuable; as Henry Leland suggested, "communication should get less esoteric."

Another important issue concerns communication and dissemination of information. Participants agreed that if two-way communication between practitioners and researchers could be established, research would become more relevant and practice more effective. Many participants felt that much current research is conducted in isolation from the actual classroom student needs and that effective systems of communication and dissemination will help pull together these dual efforts. All conference participants, including researchers, BEH consultants, and practitioners, shared this desire for better research efforts. Generating such systems could become a major goal of the conference. We hope the development of communication-dissemination systems will have an impact on the creation of new strategies and methodologies for dealing with the severely handicapped population. That is, many of the tasks which need attention will require new measurement/evaluation paradigms in order for practitioners to monitor and determine relevant instructional effects.

Members of the Steering Committee feel it is important to follow up the results of the conference in order to determine what impact the priorities that were established finally have on research over the next few years. It has been suggested that the proceedings of this conference be widely disseminated. Two groups for whom information from the conference is of particular importance are state directors of special education and members of the American Association

for the Education of the Severely/Profoundly Handicapped. Perhaps we should also disseminate with these proceedings a list of criterion-referenced variables which the Bureau may identify as a result of scrutinizing the listed priorities. Progress toward these criteria could be tied into the evaluation designs of RFPs which result from conference suggestions. As future conferences are held, BEH could review progress toward criteria and suggest modifications based on new knowledge. At least this would provide a working base.

Finally, the committee would like to thank the Bureau for the opportunity to participate in this landmark conference. We should like to thank the staff of Educational Testing Service for their excellent synthesis of our work, their gracious hospitality, and untold aids of every kind. Foremost, however, were the outstanding efforts on the part of the participants themselves: The Steering Committee unanimously agreed that they were well selected.

APPENDIX G

References for Project Documents

Bibliography of research reports, demonstration projects, and other materials relating to career education for the handicapped --1964-1974, Vols. 1 & 2. Princeton, NJ: Educational Testing Service, 1974.

Bibliography of research reports, demonstration projects, and other materials relating to education of the severely handicapped--1964-1974, Vols. 1 & 2. Princeton, NJ: Educational Testing Service, 1975.

Bibliography of research reports, demonstration projects, and other materials relating to early childhood education of the handicapped--1964-1974. Princeton, NJ: Educational Testing Service, 1975.

Bibliography of research reports, demonstration projects, and other materials relating to preparation of personnel to serve the handicapped--1964-1974. Princeton, NJ: Educational Testing Service, 1975.

Proceedings of the Conference on Research Needs Related to Career Education for the Handicapped. Washington, DC: Bureau of Education for the Handicapped, U. S. Office of Education, 1975.

Proceedings of the Conference on Research Needs Related to Education of the Severely Handicapped. Washington, DC: Bureau of Education for the Handicapped, U. S. Office of Education, 1975.

Proceedings of the Conference on Research Needs Related to Early Childhood Education for the Handicapped. Washington, DC: Bureau of Education for the Handicapped, U. S. Office of Education, 1975.

Proceedings of the Conference on Research Needs Related to the Development of Personnel to Serve the Handicapped. Washington, DC: Bureau of Education for the Handicapped, U. S. Office of Education, 1975.

Inquiries about these documents should be addressed to:

Dr. Max Mueller
Chief, Research Projects Branch
Division of Innovation & Development
Bureau of Education for the Handicapped, OE
ROB #3
Washington, D. C. 20202

APPENDIX H

Conference Recommendations on Research Needs

	Page
Conference on Research Needs Related to Career Education of the Handicapped	101
Conference on Research Needs Related to Education of the Severely Handicapped	115
Conference on Research Needs Related to Early Childhood Education for the Handicapped	135
Conference on Research Needs Related to Personnel to Serve the Handicapped	155

Recommendations for the Conference on Research
Needs Related to Career Education of the Handicapped

I. Top-Priority Research Needs

Attitudes

Although recognizing that applied research was the major orientation at this conference, the participants did make note of the need for basic research on the nature of attitude change.

Present attitudes tend to be based on erroneous impressions or fears, as well as a lack of tolerance for "differentness," that impede the handicapped person's opportunities for career development and employment. There is a need, first of all, to determine the level of awareness of what constitutes a handicapped person and then to develop an understanding of handicapping conditions and how the handicapped can be used in the total socioeconomic system.

How do families relate to the handicapped?

Survey vocational aspirations and work values of parents of the handicapped as they relate to their attitudes toward and expectations for the career development of the handicapped child.

Determine positive and negative characteristics of families which may influence the early development of the handicapped child's preparation for a career.

- Isolate and analyze major variables that influence family behavior, such as demographic, socioeconomic, sex, communication style, acceptance of the handicapped child, occupational level, and educational level.
- Adapt measurement techniques from the fields of mental hygiene and family studies.
- Observe and analyze family bahaviors.

Adapt existing techniques and develop new ones for family counseling and assessment of the effectiveness of these techniques in changing attitudes.

Investigate parental influence on the development of career attitudes of the handicapped child. For example, researchers might use the temperamental quality scale to collect baseline data and to make comparisons among various handicapping conditions.

How do employers relate to the handicapped?

Survey employers' attitudes about hiring the handicapped and procedures they use to recruit and hire the handicapped.

Survey employers' attitudes about the vocational potential of the handicapped.

Study the implications of intercultural communication processes for employer expectations of handicapped from diverse ethnic backgrounds and differences in verbal and nonverbal processes that tend to block communication.

Develop and evaluate training methodologies (e.g., case studies) to modify employer attitudes toward hiring the handicapped.

How do labor organizations relate to the handicapped?

Study unions that presently have handicapped members.

Develop ways to reach various labor organizations and to develop appreciation for who and what a handicapped person is and how he can become an asset to the union.

How do peers relate to the handicapped?

Study the influence of nonhandicapped peers on the career development of a child with a handicap.

Study how nonhandicapped workers accept handicapped coworkers.

- Measure attitudes before and periodically after the handicapped are hired.

- Evaluate the effects of educational programs and on-site counseling.

How do educational personnel relate to the handicapped?

Survey and observe educators, counselors, administrators, and industry trainers to determine their perceptions of career potentials for the handicapped and their own roles in furthering career education for handicapped students.

Assess the relationship between attitudes of educational personnel and how they develop and implement career education programs.

- Include community and individual variables such as race, socioeconomic level, and type of community.

- Evaluate staff behaviors.

How do the handicapped feel about themselves?

Study how the handicapped adolescent feels about his future possibilities for career choice and mobility.

Identify human models that affect career choices.

Survey opinions and attitudes of handicapped people regarding leisure.

Study the effects of having too much leisure time.

Assess the effect of specialized social programs (e.g., National Theater for the Deaf) on the self-concept of handicapped participants.

How do community attitudes affect the handicapped?

Determine how various sectors of the community perceive career potentials for the handicapped and how they perceive their roles in furthering career education and career opportunities for the handicapped.

Develop and validate ways of measuring how attitudes of family, peers, administrators, and employers affect the handicapped person's career planning and preparation for employment.

Develop and evaluate strategies to foster modification of attitudes and to promote awareness of the vocational potential of the handicapped.

Formulate and test hypotheses on elements of effective advocacy for handicapped children by parents, unions, industry, government, service organizations, and professional groups.

Assess the effects of specialized programs (e.g., National Theater for the Deaf) on the public's knowledge and attitudes toward the handicapped.

Critical Incidents

One group, with a heavy emphasis on rehabilitation and the outcomes of education after the secondary level, identified as the top-priority research need a study of the critical incidents which led to the loss of jobs by handicapped people and the critical incidents which led to lateral transferral or upward mobility. Knowing what symptoms or behaviors actually--rather than hypothetically--led to improvement or loss of jobs would provide the basis for other studies related to career education curriculum development and the development of early warning systems to prevent unnecessary job loss.

What recurring symptoms or behaviors are associated with lateral transferral and loss of job?

Study personal, cultural, familial, tribal, and other factors as well as the factors that are directly related to jobs.

Collect data on rehabilitation clients and special education students in work-study programs to determine recurring reasons for job loss.

Follow a large sample of handicapped workers to observe job behaviors and their relationship to maintaining or losing jobs.

Conduct retrospective longitudinal analyses of critical incidents that are related to successful and unsuccessful career adjustment.

Develop strategies for interventions of personal, cultural, and job-related adjustment training.

Decision Making

Three of the 10 teams at the conference reported their top-priority need to be research in decision making and problem solving and the development of coping skills. Noting that research questions submitted by the conference had a heavy emphasis on the need for continuous development, they stressed that career education efforts should develop these process skills to prepare the handicapped for careers, entry into the world of work, and maintenance and improvement of career potentials. The model developed by one group to illustrate the critical components and decision points is given as Figure 1 on the following page.

To what extent do handicapped students participate in the process of making decisions about their own careers?

Study the effects of this involvement.

Analyze roles of student, teachers, counselors, and peers.

What differential applications of coping strategies are needed?

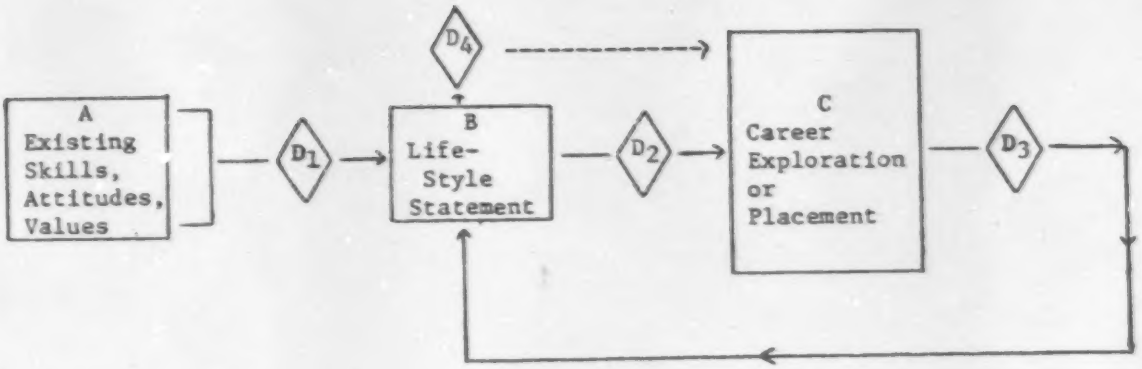
Identify and/or develop strategies to assess competency levels for decision making.

Survey how handicapped who are now successful have made their decisions.

Identify those basic/crucial problems that require decisions and coping mechanisms that are used at different age levels and in different settings.

Assess whether the skills needed by the handicapped are the same as, or different from, those needed by the nonhandicapped.

Figure 1: Decision-Making Model for Maintenance and Mobility in Career Education



The model is useful in showing how the maintenance and mobility function relates to other functions in career education: preparation, exploration, and leisure and retirement. It also shows the information feedback system and critical decision-making points that are used by client managers—and the handicapped themselves—to assess and consider change in job assignments for handicapped workers.

There are three information bases:

A - accumulated skills, attitudes, and values of individuals

B - the life-style statement of a given individual that results from base A

C - information that results from career experiences and explorations

There are four decision-making points:

D_1 - integration of skills, attitudes, and values to form a life style

D_2 - career exploration and selection

D_3 - matching of career experiences and explorations to original life-style statement; possible modification of the statement

D_4 - judgments about maintenance of career pattern or exploration and selection of new career opportunities

The model can serve as a framework for research and for program development.

How can decision-making and coping skills be developed?

Analyze the developmental sequence of coping skills and the cognitive and affective demands on these skills.

Develop objectives for instruction appropriate to those objectives.

Develop instructional and counseling interventions.

Develop follow-up counseling procedures to restructure existing coping skills and to develop new ones.

Analyze the differential effects of program applications on particular handicapping conditions and in particular settings.

Compare the career adjustment of those who have been in programs to develop coping skills to those who have not.

How do role models influence the career decision-making processes of the handicapped?

Assess visible positive role models that represent a whole range of career activities and establish dimensions of these roles.

Develop strategies to expose handicapped students to positive role models (video-tape packages and situational observations).

Evaluate the effectiveness of these strategies in improving the decision-making competencies of handicapped students.

Articulation among Personnel Who Serve the Handicapped

One group that was concerned about the oneness and separation in special education identified as a top-priority research need the question of how to develop better articulation among all agents involved in delivery services for the handicapped.

How do special education personnel perceive the adequacies of rehabilitation and counseling services? And how do personnel in these services perceive the adequacies of special educators?

How do educators, counselors, and parents interact with each other and with the handicapped?

How can articulation among individuals and groups be improved?

Career Education Models

Recognizing that the content of career education is based primarily on opinions and fragmented experiences of teachers and other professional workers, the participants saw a top-priority research need to identify developmental sequences of concepts, facts, and behaviors that are fundamental to competencies in career implementation. Out of such research should come the development of models for career education. The participants noted that since such development is beyond the capabilities of most states, it should be a federal priority. They did not discuss the need further, but reports from the preliminary sessions did detail pupils, personnel, curricula, delivery systems, and continuing education as components for program models.

How do handicapping conditions limit career potentials?

> Develop evaluation tools that will provide students, teachers, and counselors with information on the student's potential for career selection and vocational placement.
>
> Develop measurement strategies to predict student skill levels, beginning in elementary school years.
>
> Identify valid instruments for assessing, planning, recording, and reporting pupil progress.

Are there differences in perceptual, cognitive, and learning styles among children from diverse cultural, ethnic, or racial groups?

> Design career education programs that are consistent with the learning styles.

How can teachers be motivated to implement strategies for career education in their curricula?

> Provide opportunities for preservice and inservice experiences with new methodologies and innovative programs and field visits to business and industry.

How can parents be trained to work with the handicapped in ways that are consistent with in-school instruction?

Develop and field-test materials and training methods.

Does postplacement personnel counseling increase job retention and job satisfaction?

What are the unique and special needs for the development of personnel for career education of the handicapped?

Conduct job analyses of current personnel positions.

Can job-seeking, readiness, maintenance, and mobility skills be taught in such a way that these skills remain in the students' repertoire until needed?

Develop teaching strategies for different groups of students by age and type of handicap.

Evaluate effectiveness of alternative approaches by longitudinal studies.

Are job-related skills retained better when taught in job-related ways or when taught as academic studies? Are basic communication and calculation skills learned more effectively when integrated with occupational training programs?

How effective are current teaching technologies (e.g., television and audio-visual aids) in aiding handicapped students in their learning processes and career explorations?

Determine students' audio and visual requirements.

Compare varied means of display.

How can the handicapped be educated to understand their civil liberties?

Determine ways to make these concepts clear.

Develop instructional materials.

How can the handicapped be taught interpersonal communication skills for work and leisure activities and what particular skills are needed?

What recent training is necessary for young people or adults who become handicapped?

Include populations such as accident and stroke victims and amputees.

Study adjustment problems and the role of the family, employer, community, and the recently handicapped himself.

Can relevant aspects of the Minnesota Theory of Work Adjustment be used to develop viable curricula for career education of the handicapped?

Identify competencies, attitudes, experience, and knowledge in successful personnel.

Determine training-program content.

Develop a system to continuously update occupation information.

Demonstration programs in personnel preparation.

What teacher competencies are needed to integrate leisure-education activities in special education classrooms?

What counseling techniques are most effective for career and avocational guidance? What aspects of career exploration can most effectively be facilitated by individual counseling?

Prepare statements of desired outcomes as they relate to: self-concept, work attitude, awareness of career opportunities, and self-analyses of relationship to family and job.

Develop and evaluate experimental models for use at various school grade levels:

- career guidance models that differ from general educational counseling
- models that include staff counseling
- models for leisure counseling

Which personnel are effective in delivering counseling services to the handicapped?

Determine which mode or combination of modes (e.g., counseling, group process, or class instruction) of delivery is most effective.

What do the handicapped need to learn and when in the student's development should these needs be addressed?

Determine competency deficits in handicapped adults through surveys of employers, community agencies serving the handicapped, and from families.

Categorize these deficits by behaviors.

Using school-age norms, organize each learning area into developmental sequences of behavioral milestones.

Can skills in job seeking, readiness, maintenance, and mobility be taught in such a way that they will be retained until needed?

Assess which methods work for which skills and with which kinds of handicapped persons.

How does the development and utilization of leisure time complement the career-development process?

Analyze how handicapped students utilize leisure time:

- Study the effects of participation in special group activities as compared to participation in normal, integrated activities.
- Identify and analyze barriers to participation in community, civic, and recreational activities.
- Survey opinions, attitudes, and perceptions of the handicapped toward leisure.
- Develop a typology of leisure time activities engaged in by the severely handicapped.

Develop and evaluate comprehensive leisure education/counseling program models:

- a taxonomy of leisure activities related to career activities
- contributions that leisure activities make to specific career development objectives
- integration of concepts of leisure into existing subject areas
- longitudinal studies of leisure activities (e.g., practical and fine arts) and career attainment, comparing handicapped and nonhandicapped populations

What delivery and support services are needed to encourage and motivate handicapped women and girls to pursue their occupational potential?

> Develop models that will be useful to educational institutions and personnel in meeting the requirements of equal access and affirmative action laws.

How does the formal organizational structure of the school system relate to teacher effectiveness as measured by morale, expectations, and communication patterns?

Is mainstreaming the best administrative arrangement to provide career education to the handicapped?

> Study the effects mainstreaming has on children with different handicaps, personalities, and learning characteristics in relation to their career development and employability.

What existing supportive resources are available for training, retraining, and employment of the handicapped among employers and service groups at national, state, and local levels?

> Develop a model for a continuum of career and leisure time education that will provide adequate services but avoid duplication.
>
> Investigate the availability and adaptation of training programs (e.g., mobile units) for avocational and recreation activities:
>
> - determine the needs for programs that facilitate the transition from full-time employment to work disruptions.

Can schools be influenced to adopt the concept of flexible entry-reentry for handicapped people?

> Establish a prototype administrative policy statement.
>
> Determine what training or retraining is needed for young people or adults who become handicapped.

II. Additional Research Needs

There were additional research needs the conference participants considered critical but which they did not identify as top priority. These are described on the following pages.

Employability

Little is known about what competencies are needed to reach and maintain levels of effective performance on job-related tasks or how handicapping conditions dictate the extent to which these skills can be developed. Also, little is known about personal-social habits that influence the handicapped worker's employability. Moreover, with the advent of affirmative action legislation, ways must be found to help employers hire and make maximum use of the handicapped.

Are handicapped students who were trained in a curriculum based on a systematic analysis of local job opportunities more successful in job placement than those who were trained in a more standardized curriculum?

What occupational and personal skills are needed in jobs for which the handicapped are most likely to be hired?

Develop a typology of competencies of the handicapped and the distribution and incidence of these competencies among types of handicap:

- collation of jobs in which handicapped people have succeeded
- analysis of the competencies demonstrated on these jobs

Develop a typology of job competencies that are required for job-tasks in job settings as they are now defined and as they will be redefined and altered in compliance with affirmative action requirements:

- task-analysis studies of specific occupations and an examination of the degree of fit for various handicapping conditions

Identify differences between the technical skills that are needed to get a job and those necessary to keep abreast of changes in job requirements.

Develop and publish models based on biographical work histories of handicapped workers that will serve as information and motivation. Show case studies separately by categories and appropriate subcategories:

- meeting job requirements
- getting employed
- holding and getting ahead on the job

- motivation for work and satisfactions derived
- life style afforded by the job
- work attitudes and values
- job changes

Develop a schema of the gradual development of those personal-social and occupational skills that are needed for mobility on the job. The schema should take into account the transition handicapped persons make in moving from institutional training programs into society and the work experience and further, to self-sufficiency and upward mobility.

Identify special aids that are necessary to compensate for specific disabilities that may interfere with effective job performance.

Determine the effect of inappropriate social skills and mannerisms in job maintenance.

To what extent does dependency interfere with the handicapped's ability to obtain and hold employment? To what extent can independence be fostered by parents, teachers, and employers?

How can trade unions and potential employers be helped to utilize the competencies of the handicapped in compliance with affirmative action requirements?

Hold workshops on:

- legal rights
- workman's compensation
- job restructuring
- affirmative action
- architectural barriers
- motivation and incentives

Demonstrate ways of providing employment for the handicapped who cannot be placed in business.

What will be the impact of economic conditions, national fiscal policies, and new and emerging occupations upon vocational opportunities for handicapped people?

Develop and implement a uniform system for reporting job placement and job follow-up.

Physical Mobility

How do various handicapping conditions relate to mobility?

Identify the physical skills that are required for utilization of various modes of transportation.

Evaluate what impact the ability to drive has on motivation and employability of different kinds of handicapped people.

Analyze characteristics of the transportation system and determine what improvements would lead to greater mobility for the handicapped.

Is there a higher rate of employment and participation in leisure time activities where public transportation is readily available?

Study employment and independent living patterns before and after the advent of mass transit.

What are the physical and environmental barriers to mobility and how can they be reduced?

Study schools, work and recreation environments, and transportation systems.

Develop and demonstrate innovations to reduce barriers.

Special Demonstration and Dissemination

What is the present state of the art of career education for the handicapped?

Develop a guide to career education that includes career-developing experiences (individually sequenced) and assessment tools.

Sponsor research of successful programs by experts in special education, career and vocational education, and vocational rehabilitation as well as able researchers.

Recommendations for the Conference on Research
Needs Related to Education of the Severely Handicapped

I. The Top-Priority Research Needs

Prevention

The participant group concerned with prevention recommended a two-part approach for research.

1. Develop programs and train personnel to counsel and educate school-age children so that they may:

   - Exercise reasonable control over their own destinies with respect to the decision to bear children and the circumstances under which they bear children
   - Prepare themselves to be effective parents
   - Develop understanding of the causes and consequences of handicapping conditions and greater acceptance of handicapped persons so that they may seek appropriate care early in pregnancy and help for their child should he or she develop a handicap

2. Develop programs and train personnel for early intervention that is oriented both to parents and infants, beginning soon after birth and continuing through the first year. The programs should focus on:

   - Infants identified as likely to develop severe handicaps
   - Infants with handicaps which may be ameliorated so that the associated problems are less severe or are held constant

What parent programs are most effective?

Study cultural diversity among parents (of both handicapped and nonhandicapped children) to determine the range of alternative practices by which parents may adequately care for, accept, and seek care for their children.

Study the longitudinal effects of the following kinds of parent programs:

- Within the general education system for preadolescent and adolescent students
- Special education and counseling for prospective parents, especially high-risk mothers

- Education counseling for parents of high-risk and handicapped infants

Evaluate the impact of parent programs on the development of skills for family planning, utilization of prenatal and obstetrical care, utilization of services that are available for handicapped children, incidence of severe handicapping conditions, and the improved capacity to understand and care for a handicapped child.

How effective are early intervention programs in preventing or ameliorating handicaps?

Determine criteria for measuring the effectiveness of programs on the overall development of the child (short- and long-term effectiveness).

Study the effect of these programs on the incidence of severe or multiple handicaps.

Study the effectiveness of different treatment methods for children with various kinds of handicaps.

What are the barriers to providing early intervention services?

Study the effects of diverse staffing patterns and personnel backgrounds (academic and experiential).

Determine the availability of qualified personnel.

Determine the effect of costs, funding patterns, and cost benefits on the availability of services.

Study barriers to effective communication among medical and educational personnel and the family of the handicapped child.

What are the most effective criteria for selecting children for early intervention programs designed to prevent severe handicaps?

Design methods to identify those high-risk infants who can be benefited by early intervention efforts.

Determine how best to obtain acceptance of and cooperation in the programs by parents and other members of the handicapped child's family.

Early Identification

At the present time, there is no comprehensive system to identify the handicapped and to provide them with educational-medical services. For this reason, one participant group, concerned primarily with early identification, recommended as the most critical need for research the development of a case-finding system that would include such critical factors as:

- An efficient high-risk schema
- Routine and efficient screening procedures
- Consideration of social and economic costs
- Medical and educational tracking

Can we identify those high-risk factors that lead to severely handicapping conditions?

> Conduct longitudinal studies integrating the findings of previous studies conducted in other communities and other countries.

How can parents and others help in the early identification of handicapping conditions?

> Determine the most efficient system for education and training and for the transmittal of information.

Is it socially and economically feasible to institute programs for early identification?

> Compare the social and economic costs of programs that are available to all families and those that are mandatory for all children from birth to age 3.

What system is needed to ensure that all severely handicapped children receive the necessary services?

> Develop medical-educational models for tracking children after identification.

Investigate ways to improve communication among all personnel who serve the handicapped--medical, educational, psychological, social, and so on.

What are the barriers to the development and implementation of an effective case-finding schema?

Identify and explore ways of reducing such barriers as:

- Dysfunctional communications among consumers, researchers, and practitioners
- Professional personnel preparation and motivation
- Institutional roles
- Lack of a standard taxonomy
- Inadequate utilization and dissemination of existing technologies

Assessment Models for Diagnosis and Screening

In order to better serve the severely handicapped student, more effective programs for diagnosis and screening must be devised and implemented. Efforts to date have been largely fragmentary. Thus, the critical need for research in this area is the development of comprehensive models for assessment. The participant group concerned with clinical and developmental diagnosis and screening recommended that a task force be appointed to coordinate the development of specified kinds of models. They recommended further that a mechanism be provided for periodic assemblies of the task force to compare models, to evaluate their effectiveness, and to disseminate the findings.

What information is needed to implement and maintain effective intervention programs for the severely handicapped?

Assess how teachers currently use available diagnostic information for educational planning.

Determine what purposes can be served by diagnosis and screening procedures.

Develop frameworks (or models) to determine needs for assessment.

Develop assessment instruments and procedures.

Evaluate models for their effectiveness in promoting handicapped students' development and in assignment of these individuals to appropriate specific training programs.

Develop strategies for replicating exemplary programs.

Develop models for assessments that include input from such disciplines as ophthalmology, audiology, neurology, psychopharmacology, and orthopedics.

What sources of information are used in developing individualized programs for handicapped students?

Consider such sources as psychologists, medical personnel, educators, parents, and the staff of social and vocational agencies.

What is the optimal environment for assessing handicapped children? Which personnel are best able to do the assessing?

Consider cultural differences.

How can communication about the assessment process be facilitated?

Develop appropriate means for two-way communication on assessment information between those who diagnose and others concerned with the handicapped--parents, colleagues, teacher-practitioners, and the community.

Identify ways in which the personnel and parents who work most directly with the severely handicapped can provide input to the assessment process and can be involved in making decisions about program adjustments. Explore the benefits--and possible disadvantages--of this involvement.

Study the benefits derived from a system for determining whether or not field personnel are following procedures outlined by the assessment staff. The study should determine the impact of such a system on improving the implementation of recommended procedures and on better, more realistic recommendations by the assessment staff.

What kinds of administrative structure best facilitate effective assessment and programming?

Study effects of different structures on:

- Cost benefits
- Professional and paraprofessional personnel requirements
- New and projected technology
- Quality and effectiveness of assessments
- Effective communication among the parties concerned

Models of Alternative Service Delivery Systems

One participant group identified the top-priority need as research on the immediate and long-range effects of alternative kinds of service delivery systems and the development of models, many of which should be future-oriented. The group specifically noted that the models should include fully developed and documented explication, validation, and dissemination strategies; they should not be merely demonstration programs. Another group identified the need for research that focuses on cost effectiveness and cost benefits of alternative delivery systems in different settings such as group homes vs. institutions.

What are the immediate and long-range learning effects of alternative systems?

Study the dimensions of service: care, treatment, training, and education.

Demonstrate whether or not behavior-modification techniques are effective or harmful.

Conduct longitudinal studies to determine whether or not the effects of the program are permanent.

Compare outcomes of programs that are designed for different age groups and types of handicap and offered in a variety of settings.

Determine opportunities for employment and community-living options to identify appropriate training for the severely handicapped.

Develop and validate a comprehensive data system for recording pupils' progress and assess the impact of the data-collection process on the teaching-learning process.

Develop and validate measures of teacher behaviors and efficiency in different instructional settings.

What sociological and political variables facilitate or impede the implementation of alternative service delivery systems within the community?

Study the effect on learning outcomes of alternative residential-educational environments for the severely handicapped.

Assess the role of direct-care workers.

Determine how sociological and political aspects of the community impact on the development of community-based programs.

Are there significant differences in cost benefits and cost effectiveness among alternative programs?

Evaluate current management systems in different agencies, in different locations, offering different types of programs.

Analyze the cost effectiveness of education and treatment of the severely handicapped in different settings such as state residential institutions, community-based residential homes, and neighborhood clinics. Determine the effects of deinstitutionalization.

Identify more effective ways to utilize manpower and resources.

Compare the efficiency, costs, and quality of services when funds are paid directly to the client rather than to the service system.

Information Exchange Systems

The conference participants noted time and again the inadequacies of present efforts to collect and disseminate information on research related to the severely handicapped. This lack of information results in long delays between the completion of research and its implementation. Frequently information on important research that is not published never reaches the field. Moreover, there is no systematic way to provide for input from the field into research efforts.

Three groups identified this area specifically as the top-priority need for research. One recommended the development of a researcher-teacher model for direct two-way communication between researchers and practitioners. Two groups were concerned with a large-scale system for the collection, evaluation, storage, and dissemination of information about products and processes. (It was noted that careful cataloging and evaluation of existing reports on products and processes will make it possible to identify areas for which there are needs for additional research, development, and dissemination.) Although the needs statements submitted by the three groups have slightly different emphases, there is considerable overlap among them. They are, therefore, combined in this section of the report.

What needs for communication do different consumer groups have?

Establish task forces to identify needs for information.

Determine the form and content appropriate to the purpose of communication and the intended recipients.

What effect does the flow of information between researchers and teachers have on pupil gains, on teacher behavior, on topics selected for research?

Investigate which models are most effective in improving interaction among researchers and between researchers and teaching staffs.

Develop new communication methodologies.

Develop models of communications systems for researchers and potential consumers of research.

Develop researcher-teacher models for evaluation and prescriptive programming.

What alternative formats for the exchange of information are feasible and effective?

Compare such formats as intensive conferences and audiovisual presentations.

Design, conduct, and evaluate programs for teachers, researchers, and funders to:

- Develop priorities for research
- Establish a common terminology
- Stimulate appropriate research
- Encourage applications of research findings

How can barriers to effective communication be overcome?

Identify a common basis for communication across disciplines for teacher training, multi-disciplinary research, and multi-professional service in the field.

Develop standard criteria for evaluating research products.

Develop a standard notation system.

Design efficient systems for information collection, storage, retrieval, and general dissemination.

What are the best ways to implement an information system?

Identify and evaluate information now in the system and sources of additional relevant information such as government, public, and private agencies and national and international organizations.

Assemble a task force to develop a catalog of published works and carefully screened unpublished works and to identify areas of unmet needs. The topics covered should include: functional assessment procedures, validated instructional materials and technologies, specialized equipment and apparatus, and specialized facilities.

Hold conferences for the demonstration of techniques as a supplement to published reports.

Determine if existing agencies can effectively implement an information system on education for the severely handicapped.

Develop formats for information categories that are relevant to the severely handicapped, especially: language, motor, and quantitative skills; prosthetic usage; caretaking; and premature-sequential development.

Develop an inventory of resources including people, disciplines, and published and unpublished materials.

Evaluate the effectiveness of different communications models as they compare by:

- Costs
- Efficiency in reducing the time between release of findings and their implementation
- Effectiveness in transmitting information and stimulating implementation

Evaluation

Measurement and evaluation were implied or mentioned specifically in most of the research needs identified during the conference. One group, however, singled out as the top-priority need the very special problems in evaluating programs for the severely handicapped. These problems center on three major concerns: materials and procedures for assessing the most severely handicapped, assessment tools that are sensitive to small changes during short time periods and related to specific components of intervention programs, and atypical evaluation approaches that are appropriate for this population. Another group pointed out that measurement of progress is particularly important when studying the cost effectiveness of programs for the severely handicapped.

How can evaluation be used to determine how well intervention programs produce desired learning outcomes?

Establish evaluation parameters.

Determine the status of performance at fixed times during and after the program of intervention.

Determine the relationship between components of the intervention program and desired learning outcomes.

Develop strategies that can be used on a continuous basis for:

- Product evaluation (for both the student and the program)

- Process evaluation (for continuity of service)

- Predictive evaluation (for program planning)

How can evaluation be used to improve programs of intervention for the severely handicapped?

Design research to develop evaluation procedures, with particular emphasis on:

- Methods to replicate effective evaluation processes with a mechanism for maintaining quality control of the replications

- Improvement of the efficiency of the evaluation process

Develop effective, comprehensive evaluation systems that can be used for continuous evaluation and feedback of the results for program adjustment and improvement.

Design strategies for disseminating information on effective systems for evaluation.

How effective are educational programs in improving the life of the severely handicapped after formal schooling?

Develop and implement procedures for follow-up of children who have left the program to determine how their educational experiences relate to later accomplishments.

Determine the type and extent of learning needs for which future intervention must be planned.

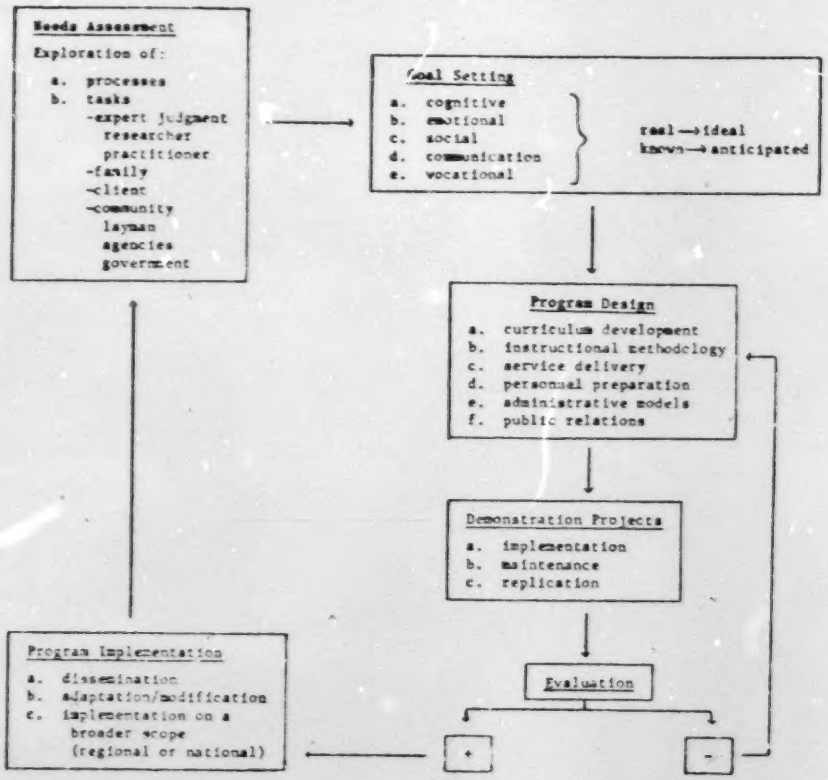
Model for Research, Service Design, and Delivery

One group submitted a comprehensive research, service design, and delivery model (below) that illustrates the relationships among the critical program issues. It shows an ongoing system that starts with the assessment of need, goes into the setting of goals, to design of programs, to demonstration of projects, to evaluation of projects. Should the evaluation be negative, the process goes back to the

program design to identify components that aren't working. If the evaluation is positive, the demonstration project is ready for implementation as a program. And then the reexamination of needs starts the cycle over again.

Figure 2

Comprehensive Research, Service Design, and Delivery Model



II. Additional Research Needs

Other needs for research that were considered by the participants to be critical but not top-priority are reported below.

Communication

Most of the communications-related issues reported during the conference are discussed under Information Exchange Systems on page 78. However, several additional issues were identified:

Is the community's need to know adequately served by the existing communications system?

> Investigate ways to provide information to and input from the local community.
>
> Evaluate the effectiveness of information programs as measured by:
>
> - Increased political support and resource allocation
> - Reduction of stigmas and increase in opportunities for the severely handicapped

Do those who have administrative and legislative responsibilities affecting the severely handicapped have the information they need in order to make reasoned decisions?

> Survey how legislators and school board members presently collect and use information.
>
> Determine what information they need.
>
> Design programs for orientation, training, and information dissemination.

What special channels of communication are needed for medical personnel who must better understand the nature and needs of the severely handicapped?

> Explore the use of seminars and workshops and the dissemination of information through professional journals.

How should parents be informed and what should they know about their severely handicapped child?

Develop strategies for informing and counseling parents that:

- Involve physicians, the clergy, teachers, and researchers
- Give particular emphasis to parents of young children
- Include information on expectations of level of achievement and limitations of the handicapped child

Evaluate the effectiveness of these communication strategies.

Is it feasible to use the services of a professional information disseminator to keep abreast of recent developments and facilitate their application by practitioners?

Is it possible to provide a common language for educational objectives for more effective communication among agencies?

Explore the feasibility of a computer-based system to provide classroom teachers with information on behavioral objectives and the strategies, resources, and skills needed to reach those objectives.

What special documents are needed by those who work with the severely handicapped?

Provide for an annual review with articles on important research efforts, their relative merits, and their application in the field. The articles should be written by leading authorities and should be nontechnical.

Develop a dictionary and resource handbook on handicapping conditions to provide information to educators, parents, and medical personnel on: etiology, symptoms and characteristics, range of progress, educational-living techniques, and resources available for various types of handicaps.

Commission a definitive state-of-the-art paper on research and evaluation in education for the severely handicapped. The paper should include appropriate input from other disciplines such as education, psychology, and statistics.

Management/Administration Systems

Many of the research needs and topics discussed earlier in this report include management and administrative components. The conference participants

did, however, identify certain critical areas of the management process itself which should be researched.

What competencies are needed by administrative personnel?

Conduct a task analysis of administrative positions and develop performance standards and competency statements for each position.

Assess skills needed for effective communication to various audiences.

Develop leadership qualities through preservice and continuing education experiences.

Identify the competencies required for planning and budgeting, interpersonal relations, and legal considerations.

What training in basic and effective management skills can be made available to personnel serving the severely handicapped?

Survey existing training opportunities.

Assess the need for management skills.

Develop and evaluate training programs.

How can cooperation be fostered among the different groups that provide assistance to the severely handicapped?

Analyze existing management models.

Develop management models that include:

- Consideration of allied services which are controlled and funded by different sources such as assessing staff, public school teachers, special education cooperative therapists, private practice clinicians, parents, and medical personnel
- Provision for coordination, feedback, and follow-up

Demonstrate effective models.

How can assessment and follow-up information be used to better advantage in program development?

Identify factors which promote--or impede--effective use of process evaluation for continuous assessment and the improvement of program goals, intervention strategies, data collection, and program evaluation.

Develop program management systems which incorporate the use of process evaluation in program design and implementation.

- Include identification of when and what decisions must be made and a process for decision making that facilitates program adjustment
- Investigate the use of conflict-resolution techniques such as the Delbecq nominal group method
- Study what effect participating in the decision-making process has on personnel satisfaction

How can the effectiveness of management systems be evaluated?

Develop strategies to evaluate the management of programs for the severely handicapped. Include as criteria:

- Changes in student performance
- Cost effectiveness
- Responsiveness to internal and external feedback

What are the indices of normalization?

Identify an exhaustive set of domains of human experience.

Determine levels of development in each, ranging from completely normal to completely abnormal.

Determine the appropriateness and/or value of programs for individual severely handicapped people.

Explore ways to implement normalization.

Nonverbal Communications Systems

What assessment procedures can be used with those who lack both an effective communication system and fine manipulative abilities?

Identify a hierarchy of prelanguage-level stages.

Evaluate available materials and strategies.

Determine what elements should be included in the assessment.

Develop new procedures to communicate with and assess this population.

Determine qualifications needed by personnel who conduct the assessment.

Personnel

What development of personnel resources is needed?

Determine the population of severely handicapped to be served and the population of personnel who serve the handicapped.

Identify the needs for specific kinds of personnel. Indicate curriculum, academic and experiential background of staff, and numbers of staff needed.

How do personnel training programs relate to school settings?

Consider how various patterns of personnel utilization indicate the need for differential training.

Study the cost effectiveness of training personnel for various staffing options.

Use pupil achievement as the criterion for evaluating different training models.

What teaching methods can be used to prepare teachers to deal with interpersonal relationships?

Determine the psychological mechanisms involved in interactions among parents, teachers, and children.

Identify training that is effective in preparing the teacher. Measure effectiveness in terms of the handicapped child's progress and the teacher's increased competence to serve the child.

What are appropriate roles for personnel who serve the severely handicapped adult?

Study characteristics of personnel presently serving handicapped adults.

Determine which characteristics are desirable.

Develop training models for the development of these personnel.

Are longitudinal educational services needed for personnel?

Determine factors related to providing learning opportunities including:

- Diagnosis of the need for instruction
- Curriculum content and sequence
- Instructional methods and materials
- Settings

Develop instructional models.

Conduct longitudinal studies to evaluate the effectiveness of the materials and models in terms of personnel development and employability.

What are the best ways of training personnel in multi-agency settings?

Develop a variety of approaches to specialized training for teachers, parents, paraprofessionals, administrators, foster parents, managers in group homes, and recreational and leisure-time personnel.

The Adult Severely Handicapped

Are existing methodologies effective for the education and training of the adult severely handicapped?

Determine the educational goals and learning settings that are most appropriate for this population.

Determine the significant physical, social, and intellectual characteristics that are unique to this group.

Analyze the applicability and efficacy of existing teaching technologies for handicapped adults in various learning situations.

Develop new technologies as needed.

Conduct long-term research and demonstration with service models that are successful in producing desired vocational, social, and personal outcomes.

What organizational structures are needed to provide continuity and coordination of quality services for the adult severely handicapped?

Conduct comparative studies of various organizational arrangements such as public and voluntary agencies at local and state levels.

Evaluate effectiveness as related to such criteria as client outcomes and costs.

Attitudes

How can positive attitudes toward the severely handicapped be fostered?

Determine the methods, instruments, and strategies that are needed to evaluate the affective dimensions of interpersonal relationships between the severely handicapped and others.

Relate skills to affective variables observed in the home, school, and work settings.

Determine cultural differences.

Identify and implement strategies for developing positive attitudes.

Assess the effectiveness of the strategies used in producing more desirable attitudes and changes in behavior.

Educational Goals

What are the life requirements of the severely handicapped?

Analyze requirements in a variety of environmental settings through observation and interviews with the handicapped and those responsible for their care and training.

What behavioral goals are desirable and realistic?

Determine separately for each of the key agents in the severely handicapped person's life (parents, practitioners, legislators, administrators, and the handicapped himself):

- Current goals
- Ultimate goals perceived as probable, possible, and preferred

- Effect of intervention on expectations
- Process by which goals are established and reevaluated

Explore the use of the Delphi technique in setting goals.

Study the impact of intervention strategies on modification of expectancies:

- Determine how the parents can be helped to develop goals for their severely handicapped children
- Determine how decision makers can best determine goals for the severely handicapped

How and to what extent does the severely handicapped child compensate for his disabilities?

Determine how these compensation mechanisms relate to achievement in specific educational programs.

Recommendations for the Conference on Research Needs
Related to Early Childhood Education for the Handicapped

I. Top-Priority Research Needs

Child Characteristics

A major concern of the participants was that the assessment process must take into account the child's interaction with his environment whether the assessment includes measurement or observation or both. The assessment is valid only in context; i.e., it must recognize that children use different strategies to achieve desired goals.

To understand more fully the handicapped child, the group recommended four major research topics:

1. Investigate how the child uses a variety of problem-solving strategies to cope with meaningful problems.

   What adaptive strategies does he use to cope with academic demands? With social demands? To develop self-help skills? Noncognitive skills?

   - Consider the affective and social contexts in which these strategies develop.

   Does the child use different strategies in different settings?

2. Develop systematic measurement strategies to assess how children interact with varying environments, recognizing that there is more than one right behavior pattern.

   What aspects of problem solving do individual tests (such as Stanford-Binet and WISC) measure?

   How can combinations of existing measures be used to report how children solve--or fail to solve--problems?

3. Study sets of interrelated competencies that children demonstrate when they use different behaviors in different ways in different settings and formulate models of child development taking into account differences due to varying handicapping conditions.

   - Conduct a literature search.

- Develop observation schedules to identify variables that are related to the child's performance characteristics.
- Perform controlled studies on patterns of interaction.
- Relate study findings to curriculum, instruction, and institutional settings.

4. Develop and validate procedures to identify at a very early age those children who have, or are likely to develop, handicapping conditions.

It was the group's specific recommendation that the Bureau of Education for the Handicapped develop strategies for comprehensive and interdisciplinary research.

Service Delivery Systems and Institutional Models

The group that attempted to identify a single top-priority need for research on this topic was reluctant to synthesize the critical needs reported from previous sessions. It reported instead the following 16 individual recommendations with the caution that each was of equal importance:

1. Determine the service needs of handicapped children and their families. What interventions are needed? When?
2. Determine what delivery technologies are appropriate for which services.
3. Develop service delivery systems and institutions to involve hard-to-reach children and families.
4. Explore institutional parameters in order to identify the strategies needed to introduce, implement, and maintain innovative programs in relevant institutions.
5. Assess the characteristics of the institution or family that provides effective care for the exceptional child.
6. Compare institutional parameters as they relate to the feasibility of various programs of service delivery and to child and family outcomes.
7. Undertake careful and complete program development within program models.

8. Compare various models for efficiency.

9. Conduct retrospective analyses of clusters of how existing programs relate to child and family outcomes.

10. Describe existing service delivery systems in terms of types of services, types of delivery systems, and types of settings (e.g., institutional goal structures and the relationships among institutions).

11. Develop program evaluation techniques such as internal accountability data systems, process methods to characterize programs, child and family outcomes, and cost effectiveness methods.

12. Identify variables that characterize full delivery systems. Compare delivery systems by types of service, delivery systems, and institutional variables. Compare outcomes and characteristics of delivery systems by variables such as: cost, physical setting, agency sponsorship, techniques, media, comprehensiveness of service, integration of handicapped and normal children, parental involvement, parent styles leading to risk taking by children, and replicability.

13. Develop models for the integration of services.

14. Develop strategies for referral and coordination between medical and educational agencies.

15. Conduct research on strategies for the dissemination of information and utilization of knowledge.

16. Carry out longitudinal evaluation studies.

Personnel Development

The group discussed the development of personnel who will work directly with young handicapped children and those who will train such personnel. The participants identified four top-priority needs for research:

1. Identify and analyze what competencies are needed by trainers.

2. Develop effective alternative training models.

   What are optimal trainer/trainee ratios in competency-based training programs?

   What models of cooperation among institutions will facilitate better training?

   How do existing alternative models of personnel training compare?

   Can training programs be validated against the needs and attitudes of consumers?

3. Define the specific skills needed by personnel in different settings and across different disciplines.

   What retraining and reorientation are needed by personnel for new roles indicated by mainstreaming and new mandates?

   Can methodologies be developed to determine what competencies are needed by personnel who work with different age levels, in different settings, with children with different degrees of handicap, and with access to different kinds of resources?

4. Determine the numbers and types of personnel at the national, regional, state, and local levels in terms of the numbers and types of children to be served and the numbers and types of settings.

Research questions posed by the group were:

- What are the cost factors related to personnel development and career ladders?
- What data are needed for making decisions about related support services such as teacher/child ratios and how to organize classrooms?
- How can institutions be helped to respond more quickly to new training needs?
- How do institutional issues such as unions and tenure affect the organizational hierarchy and the functioning of programs and personnel?

II. Additional Research Needs

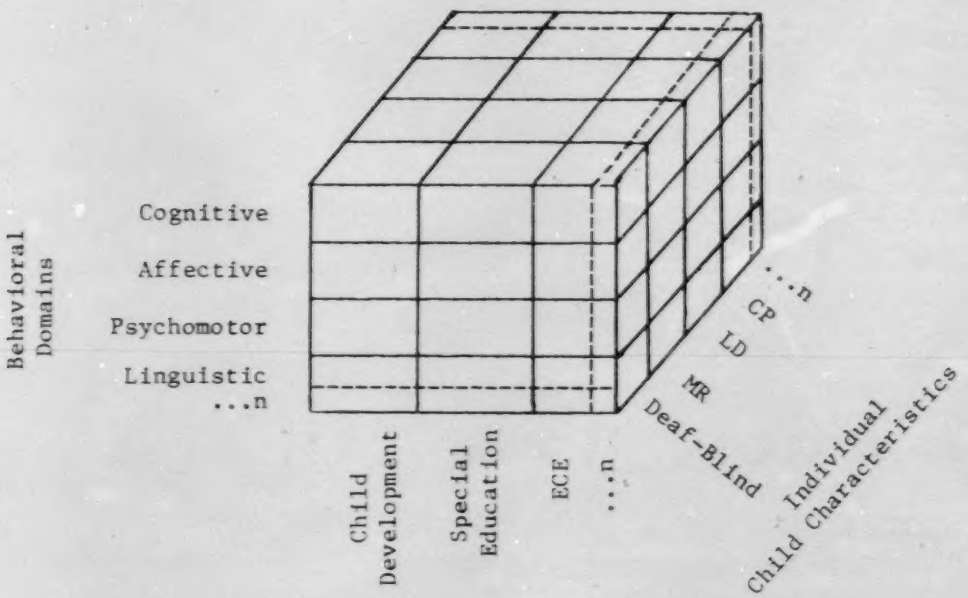
During the conference, the participants identified critical needs for research in each of the four topic areas. Some of these needs were incorporated in the recommendations as top-priority and are reported above. (A fuller, more detailed

description of these needs and the identification of additional ones can be found in the reports of working sessions of the conference.) The additional research needs are reported below along with researchable questions and suggested research strategies. The recommendations are presented by category for convenience. However, in many instances, the issues within each category are concerned with more than one focus area.

CHILD CHARACTERISTICS

One group presented a model that may be used to identify what is already known and those areas that need further investigation.

Figure 2
Model for Research on Child Characteristics



The Child and His Environment

One group pointed out that exceptionality may be seen as a lack of fit between child characteristics and environmental demands. They recommended, therefore, the development of an ecological model as the frame of reference for research related to child behaviors. The model should address such variables as:

- Socialization
- Development within diverse cultures
- Interaction of child traits and demands of the environment
- Development of self concept and the effect of stigmatization
- Family characteristics as they relate to the child's developmental progress
- Nutritional and genetic influences on the child's development
- Attitudes of parents and parent substitutes as related to emotional development of the child

Definition and Effects of Handicapping Conditions

Determine the characteristics of infants which are indicative of or predictive of handicapping conditions.

> How can early identification be used to indicate the need for programs of early intervention?
>
> Can methods be devised that detect potential mild educational handicaps in preschool children? In school-age children?

Determine the characteristics of parents that are predictors of handicapping conditions in their children.

> Can the identification of genetic and emotional problems in parents help in preventing handicaps?

Study the effects of various disabilities on the development of the child, on the family unit, and on teachers.

Define handicapping conditions and identify the characteristics associated with each.

> Establish a multidisciplinary panel to arrive at professional agreement on definitions.

Assess the processes by which handicaps are identified and diagnosed and handicapped children are referred to treatment agencies with a view toward:

- Making diagnoses more accurate
- Identifying handicaps at an age when effective treatments may be prescribed
- Avoiding categorizing or labeling
- Advising parents on deciding what kinds of behaviors for which to seek help

Determine the least restrictive and most appropriate environment for individual handicapped children.

What characteristics predict how well a handicapped child will be assimilated into regular programs with nonhandicapped children?

Provide a means for disseminating basic research on the characteristics of handicapped children to educational personnel.

Translate highly technical material so that it can be understood by those who are directly concerned with education of young handicapped children.

The Development of Critical Skills and Behaviors in Handicapped Children

The participants felt that a basic need is to delineate specific competencies that children need in order to achieve a more complete life. The global approach does not lead to understanding development sequences or desired behaviors nor does it indicate appropriate programs of education. In discussing research needs related to this issue, the participants pointed to the need to consider four major factors:

- Analysis of the behavioral domains including cognitive, affective, psychomotor, socio-personal, and language
- Determination of which skills and behaviors are needed in the various domains
- Definition of the processes by which they are developed
- Comparison of handicapped and nonhandicapped children

What effects do specific handicapping conditions have on the sequence of development in all areas? How does development differ from that expected of nonhandicapped children?

- Conduct longitudinal studies on groups of children with various handicaps.

What critical skills are needed in the various areas of development (e.g., motor/sensory, cognitive, social and linguistic)? How do interactions among the domains contribute to the overall development of the child?

- Document what the child needs in order to progress successfully through the early stages of development.
- Determine how integration of the domains affects the child's adaptive behavior.
- Develop a scale of normative characteristics in the emotional-social domain that will permit comparisons between handicapped and nonhandicapped children.
- Develop schemes for observation that focus on micro-behaviors.

How do family attitudes and patterns of parent-child interactions affect the development of affective characteristics in handicapped children?

Measurement of Child Characteristics

In order to undertake the kinds of research cited above, it will be necessary to develop additional measurement tools. These should make it possible to assess more effectively the child's development and the impact of educational programs.

Develop ways of measuring overall and specific development in the various domains (e.g., cognitive, adaptive, and motor) for normal, handicapped, and at-risk children with special attention given to consideration of the need to adapt these measures for use with children with different types of handicaps.

Design systematic research studies including those that are longitudinal, both descriptive and comparative, short-term and sharply focused on crucial problems, and related to the origins of learning patterns.

Develop culture-appropriate tests to determine factors that are indicative of success.

Identify measurement strategies and techniques for the assessment of interactions among child and environment characteristics.

Do the setting and type of techniques used affect the measurement results?

- Delineate the nature of information provided by each measurement device.

- Design and validate strategies for multimethod, multi-trait assessment.

SERVICE DELIVERY SYSTEMS AND INSTITUTIONAL MODELS

The distinction between delivery systems and institutions was useful in focusing attention on both aspects of early childhood education. However, in discussing problem areas and needs for research, the participants invariably considered these as two interrelated aspects of the same issue. Recommendations for research that emerged from these discussions are, therefore, presented here together.

In discussing models for the effective coordination of services for handicapped children, one group identified variables that must be included in the model. These are presented in Table 1 on page 87. Some of the variables were considered in detail and for these, specific needs for research were identified and researchable questions were posed.

Needs of Consumers

Determine the degree to which communities (and particular subgroups within the communities) want proposed services and will utilize them.

Are consumer groups interested in proposed services? Do their attitudes and needs justify the implementation of these services?

Are parents more motivated to accept and support programs that take into account their own attitudes and customs?

Table 1

Variables to be Included in Models for Effective Coordination of Services to Handicapped Children

Educational delivery systems variables

- self-contained classrooms
- resource rooms
- itinerant services
- clinical settings
- center-based settings
- home-based settings
- hospital-institution settings

Student variables

- type of handicap
- age
- interaction among the exceptional children
- interaction of handicapped children with non-handicapped

Parent variables

- those working in the educational setting
- those trained or working through a home-based program in conjunction with the professional staff
- parents receiving group therapy with other parents of the handicapped
- parents interacting with parents of non-handicapped
- parent roles in policy making and other roles
- parent education
- training teachers to work with parents
- training parents to work with staff

Staff variables

- ratios of staff to students
- characteristics of staff members
- training
- interaction among staff members
- paraprofessionals and volunteers - their training and utilization

Administrative organization and coordination

- public schools--single or consortiums
- private agencies
- state and community agencies
- single or multi-state (regional) agencies
- interaction and communication network between the agencies
- sources of revenues
- funding patterns which are most effective
- effective record keeping and information systems

Evaluation

- child outcomes
- cost effectiveness procedures
- coordinated data collection systems between all levels of the network
- implementation of services and programs
- cost-benefit procedures (follow-up)
- other client outcomes--parents, etc.
- societal and community impact studies--changes, etc.

Educational and therapeutic learning theories, systems, and philosophies

Determine modes of delivery that are appropriate for different communities.

> How does the delivery mode (e.g., center-based or home-based) interact with geographic characteristics (urban, rural) and with community characteristics (ethnic, socioeconomic status)?

Conduct retrospective studies, sampling over different combinations of characteristics.

Evaluation of Services

Develop models for evaluating service programs of education for young handicapped children that will help to establish accountability standards, indicate cost-effective strategies, and effect change in institutions and programs. Take into account basic, critical aspects such as:

- Cost effectiveness, including time required for different types of service to maintain the child's functioning at or close to his potential
- Long-range impact, as measured by needs and characteristics of children and types of educational programs
- Amelioration of specific handicapping conditions
- Satisfaction of target populations with services and outcomes
- Differences between programs for nonhandicapped children in terms of services required and realistic expectations
- Funding sources and type of agency sponsorship
- Specific intervention procedures and availability of supportive services, program characteristics, and curriculum models
- Continuity of service through coordination with community resources
- Institutional settings
- Progress of children as a function of the interaction of the delivery model with child and family characteristics
- Parental involvement in the child's education

Make comparative studies of different systems for service delivery.

Which systems are effective for particular kinds of children in particular institutional settings?

Compare across conceptual models.

Sponsor clusters of demonstration projects (perhaps through consortia) to coordinate development of models and materials, data collection, evaluation, and dissemination of results.

Develop criteria for long-range evaluation of child outcome; conduct longitudinal and cross-sectional studies.

Provide for recycling of evaluation data as input for improving the delivery of services.

What are the effects of integration (or assimilation) on both the handicapped and the nonhandicapped children involved and on their families?

Study the effects on educational and personal development of the nonhandicapped and of children with different handicaps.

Determine family attitudes as evidenced by support of the program.

Relate integration approaches to different needs of individual communities.

Are home or school/home training programs effective?

Identify criteria useful in determining which people function effectively as caretakers.

What devices and aids are most appropriate and useful?

Relate devices to needs, characteristics, and problems of handicapped children.

Develop a manual of devices and aids with information on:

- Purpose served
- Efficiency
- Performance characteristics
- Benefits provided

Supportive Services

Identify and/or develop models for the effective coordination of services to handicapped children.

What support needs to be provided by teachers, other personnel, and nonhandicapped cohorts after the initial intervention and integration of the handicapped child?

- Determine what supports are available and which are best suited to maintaining the child's optimal progress.

Develop exemplary strategies for the involvement of parents in early childhood intervention programs.

What are the best ways to involve parents?

What types and degrees of involvement are related to desired outcomes?

Do different categories of children require different types and degrees of parental involvement?

What characteristics of parents are related to effectiveness in working with the handicapped child?

Does the parent derive benefits from the involvement?

How can parents be helped in making critical decisions through information and guidance?

Develop alternative approaches to comply with legal requirements for services in situations where parents do not--or cannot--cooperate.

What services can be provided to the preschool child in the absence of operative programs?

- Explore the use of media and other training mechanisms to stimulate parental interest and participation.

- Identify the roles of professionals and institutions in accepting legal responsibility for protecting the child's rights.

Assess the effectiveness of supplements or substitutes for parents as primary caretakers.

What is the most appropriate type and extent of intervention?

- Consider type of handicap, stage of the child's development, and alternative models such as neighborhood out-patient services, halfway houses, development homes, and foster homes.

Determine the appropriate role of the consumer in program implementation and development.

Educational Programs for the Handicapped Child

Provide long-term support for systematic curriculum and instrument development that permits the study of curriculum components, how they are operationalized, and their effects on children and parents.

Develop instructional technology for use by teachers and parents.

> How do child characteristics determine what type of instruction is needed?
>
> How should handicapped children be taught critical skills?
>
> Which techniques succeed and which fail in given skill areas, in given settings, with given kinds of children?

Determine at the national level the kinds of information that are needed in order to make efficient and effective decisions.

> What information is needed in order to make appropriate decisions in regard to placement, educational programming, administrative setting, and medical treatment?

Make provision for a research component in planning and funding model demonstration programs.

Institutional Settings

As deinstitutionalization and alternative living environments become more prevalent in our culture, it is imperative to examine the effects on children and cost-benefit effects of these various service delivery elements either singly or in combination. In addition, it is necessary to determine the main strengths of various institutional models in order to maximize service to handicapped children.

Compare the effectiveness of differing types of institutional settings: home, residential school, foster homes, or group homes.

Is the care provided in a family setting (natural or other home) more effective than that provided in an institution?

Are alternatives to institutionalization functional for severely and profoundly handicapped young children?

What alternatives are appropriate for which kind of child and family?

- Consider social and educational risk factors.

- Determine the most effective use of fiscal resources.

Develop model community agency programs for providing young handicapped children and their families with education-related support such as diagnosis, devices, and financial aid.

How can agencies be made aware of each others' philosophies and objectives?

Is there a need for a referral agency to evaluate available services and educate parents about available alternatives?

How can cooperation among agencies be facilitated to provide coordinated services?

Conduct a functional analysis of institutions that are providing services for the handicapped in a given region.

What factors interact to facilitate or prevent the total delivery of services?

- Determine perceptions and attitudes within institutions and toward other institutions and perceptions and attitudes of parents toward services provided and needs of their children.

Develop a model plan among institutions for totally coordinated delivery of services. Have the plan evaluated by someone other than the funding source. Pilot-test components of the plan. Implement the plan.

Is the plan successful in terms of children served, staff turnover, and institutional change to better meet the needs of handicapped children?

Is there an improvement in attitudes of institutional personnel and parents?

Is there increased communication among institutions and an increased rate of delivery of services?

Administration

Conduct comparative studies of types of institutions that deliver services to preschool handicapped children and their families.

What organizational parameters influence the institution's ability, or failure, to achieve goals and objectives?

- Carry out sociological/anthropological systems analysis.
- Determine the relationship of political, economic, and social factors to the development of institutional structures and their effects.
- Study successful institutions longitudinally to determine useful strategies for coping with challenge and implementing change.

Does the organizational climate affect personnel performance?

- Study the effects of leadership styles, reward systems, attitudes toward work, and opportunities for staff interaction.
- Study the impact of tenure on teacher performance.

Develop techniques to assist individuals to determine their own perception of their role and their expectations of others.

Is communication improved when individuals understand and appreciate their own and others' needs, expectations, desires, and priorities?

Develop and evaluate effective change models.

How can institutions be structured so that they can benefit quickly from new information and new procedures?

- Use methodologies like those used in systems engineering, learning theory, and community psychology.

What factors maximize the adoption of new programs by institutions?

- Determine strategies for initiating interest in adopting the program.

- Develop strategies for implementing the program in given institutional settings.

- Identify program characteristics which are most effective in continuation of the program.

- Determine whether adoption of program causes or requires institutional changes.

Analyze the processes by which decisions are made relative to early childhood education for the handicapped in various institutions.

What factors enter into the decision-making process? What negative factors subvert effective implementation of programs?

What is the role of research and service institutions in influencing legal decisions and legislation?

What responsibilities do government agencies have to provide for continuous program needs of children?

How can continuity and integrity of programs be maintained after the program's originator is no longer in charge?

Identify in existing model programs for handicapped children those personal interactions that either facilitate or inhibit utilization of the models.

What variables have critical effects on:

- Program developer and/or staff?
- Program users?
- Institutions?

Attitudes

Identify strategies to develop positive attitudes toward children with different handicaps and in different educational settings.

How do teachers, peers, and administrators respond to handicapped children?

- Study expectations of inner city teachers for exceptional children.

How can positive self-image be fostered in the handicapped?

Information Systems

Develop a universal data system to provide developmental information to agencies working with handicapped children and their families.

Provide a system to integrate, translate, and disseminate information.

> Establish criteria for evaluating the adequacy and effectiveness of materials.
>
> Provide consumer information on products and materials for special education programs.

PERSONNEL PREPARATION

Personnel in the context of this conference was used primarily to mean those who have had professional training as educators. In many cases, however, the participants used the word to mean all who play a part in educating the handicapped child, such as parents, paraprofessionals, medical staff, and so on. They also used the term for those who train teachers.

Entry into Training in Special Education

Develop a competency-based evaluation scale for the guidance of student applicants.

Develop selection criteria and procedures.

Competencies Needed by Personnel

Identify the competencies and attitudes needed to work effectively with various kinds of handicapped children and their families.

> Are different competencies needed to work with children of different ages and degrees of handicap in different settings?
>
> What competencies are needed by teachers, administrators, and teacher trainers?
>
> - Identify criteria for basic competencies by studying teachers judged successful in producing desired pupil outcomes, by expert consensus, and by feedback from trainees and practicing teachers.

Analyze the functions that need to be done in a comprehensive service delivery system?

What roles are derived from this analysis?

What competencies and interdisciplinary training are needed to prepare personnel for those roles?

Training Models

Define the role of service institutions in maintaining and improving the skills of staff.

Identify different community agencies that are equipped to provide training to personnel.

What agencies have a capability to train specific kinds of people who work with the staff?

Can consumers train their own personnel?

Is it efficient to contract with private concerns for personnel training?

Assess the ability of training institutions to produce teachers who are able to work effectively with handicapped children.

What are the optimal training procedures for academic and practicum experience?

What is the optimal internship experience?

Develop, implement, and evaluate techniques for delivery of inservice training.

Are there effective approaches to providing inservice training for medical personnel involved in the identification and treatment of handicaps and family counseling?

- Include identification of education-related problems in such areas as oral language, problem solving, and social and motor development.

What type of training do regular teachers need to change attitudes and behaviors toward the handicapped children who are assimilated into their classrooms? Which are most effective in preparing the teacher to deal with various handicaps and with families?

What variables are central to retraining personnel to work with the handicapped? Do they include:

- Previous experience?
- Personal characteristics?
- Experience and role with nonhandicapped preschool children?
- Age?

Determine the training required to prepare early childhood personnel to interact effectively with the parents of handicapped children.

How should these personnel be trained?

What is the effect of intensive contact between teacher and family, and does this effect vary across cultural groups?

Who should provide the liaison with parents?

Manpower Needs

With the decrease in total school populations and the increase in the handicapped population in the schools, needs for trained personnel are changing. Teachers may be retrained to work with young handicapped children. (Research needed on inservice and retraining is discussed elsewhere in this section. Additional needs are given here.)

Identify teacher-certification reciprocity between states and licensing agencies.

What are the requirements for certification?

What are the constraints on reciprocal agreements?

Identify the needs for manpower at the child-service level and develop a system for providing information to the trainers of personnel. Base the assessment of needs on judgments of optimal service delivery systems and institutional settings.

Determine realistic estimates of teacher/child ratios needed for optimal effectiveness of different kinds of programs.

Recommendations for the Conference on Research
Needs Related to Personnel to Serve the Handicapped

I. Top-Priority Research Needs

It should be noted that although no one of the final top-priority items was identified with the second topic area, personnel selection, all groups did nevertheless recognize as important the ways in which personnel are selected for training and job placement.

Pupil Outcomes

For special education programs to be appropriate and effective, they must address the needs and potential of the individual handicapped person for whom they are planned. They must reflect, as well, the values of the particular subculture in which the individual lives. Further, the program objectives must be a product of community participation in the setting of educational objectives. Since all segments of the community will not agree, means must be found to resolve differences in attitudes, values, and expectations to permit the individual student maximum achievement of his own educational goals.

This indicates three major research needs and poses several researchable questions:

1. Develop and demonstrate procedures for determining educational expectations and appropriate educational objectives for individual handicapped persons.

   What educational outcomes are important to relevant consumers (handicapped students, their parents, and employers) and to relevant policy makers (legislators, teachers, and teacher trainers)?

   Are goal values the same regardless of cultures or are certain values specific to various subcultures?

   Do educational values vary as a function of the environment (rural, suburban, urban) and the occupational needs of that environment?

How can the community be involved in establishing educational objectives? What strategies are helpful in mediating differences in attitudes, values, and expectations?

How can the present levels of performance and expectations for future performance for individual students with specific handicaps be defined?

What is the probability that various handicapped individuals will attain desired outcomes?

By what processes and criteria is success determined? Does the handicapped child express ideas of success differently from one who is not handicapped? Do criteria of success differ for males and females with the same handicap?

What are the minimum essential levels of competence--and/or profiles of several levels of outcomes--that individual handicapped people must achieve to have a reasonable chance for a happy, healthy, successful life?

2. Define curriculum areas for education of the handicapped in terms of short- and long-term pupil outcomes. Areas should include but not be limited to:

creativity	human relations
survival skills	aesthetic orientation
self-understanding	recreation/leisure
learning how to learn	citizenship

3. Develop measures of educational achievement that can be used for continuous assessment of pupil progress and that are sensitive to small increments of growth.

How can these measures be used as criteria for evaluating personnel development programs? The effectiveness of personnel in the classroom? Personnel selection?

How can achievement of handicapped individuals be evaluated within the context of their own framework of values and expectations and that of family, special educators, and other advocate groups?

The research methodology must include procedures for continuous measurement of pupil progress toward the established objectives and feedback to permit analysis and evaluation.

Personnel Training

Since all training efforts should relate to pupil outcomes, it is necessary to determine the competencies required of special education personnel to produce those desired outcomes. Then the instructional programs must be designed to build in these particular competencies. These programs must, in addition, accommodate differences in trainee characteristics and differential competencies required of personnel in various kinds of delivery systems.

The three top-priority research needs in this area center on interaction between the teacher and the handicapped pupil, characteristics of the training program, and evaluation of the training process:

1. Develop systems for observing teacher behaviors and teacher-pupil interaction. Conduct empirical studies of how specific observed teacher behaviors relate to specific pupil outcomes.

   What basic competencies do teachers need?

   What teacher competencies effect desired outcomes in pupils with different handicaps?

   Are different teacher competencies needed for alternative models of special education (such as mainstreaming, self-contained vs. itinerant programs)? For different content areas?

2. Determine how specified aspects of the training processes contribute to the development of competent personnel. Develop models for evaluating training programs that include trainer, trainee, and pupil-outcome variables and that facilitate application of the evaluation findings for the improvement of personnel training programs.

   What basic competencies do personnel need?

   What influences do the nature and personal characteristics of trainers have on training outcomes?

Are modular and/or auto-instructional programs as effective or more effective than traditional programs? Do some trainees do better in one type of program or the other?

Are there differences between programs that are predominantly field-based and those that are not? Between those that are predominantly categorical and those that are not?

Are simulated experiences as valid as reality-based practicums? Does the amount, variety, or quality of practicum experiences make a difference?

3. Study alternative systems for in-service training.

   Is it feasible to provide training through such avenues as closed-circuit TV or self-instruction modules?

   What other modes are feasible?

Personnel Utilization

Having considered issues that relate to pupil outcomes, the selection of personnel, and the training of personnel to teach in ways that result in maximum pupil gains, the participants next discussed the effective utilization of personnel. This discussion pointed up two top-priority needs for research:

1. Determine the relationship of pupil outcomes to organizational atmosphere and alternative configurations of manpower utilization.

   What effect do the degree of openness in a school system and different staffing patterns have on student achievement?

   Do they affect teacher productivity?

   What are the relative cost benefits?

2. Develop and implement various teacher role models (such as the teacher as a program manager) and compare the efficacy of alternative models.

   How can teachers assess what the individual pupil can presently do, predict his learning potential during the next stages of development, determine realistic educational objectives, and design an appropriate educational program?

How can teachers identify, mobilize, and secure the support for the program that is available from auxiliary systems such as:

- Personnel resources within the school system such as physical education teachers, home economics teachers, administrators, physical therapists, occupational therapists, and vocational-technical teachers
- Community resources such as parents, the clergy, social agencies, and medical personnel
- Local, state, and federal governments

II. Additional Research Needs

Additional needs that were identified by the participants as critical but not top-priority are given below along with key factors that the participants felt should be included in the research efforts. Although these are presented by category for convenience, most are multi-dimensional and relate to more than one focus area.

Relationships between Teaching and Pupil Outcomes

Determine if there is a relationship between pupil achievement and the degree to which personnel have knowledge of, and identify with, the population they serve. Test the theory that the match of personnel characteristics to pupil characteristics (for example, by type of handicap, ethnic group, socioeconomic status, or sex) is a valid criterion for selection for training programs and for employment. Effectiveness of the match should be studied at entry into, during, and exit from the training program and at entry into and during actual service.

Determine what positive and negative effects programs of interdisciplinary instruction involving multiple personnel have on pupils as compared with nonteam efforts. Study teams with various compositions of personnel and team planning and interaction and their relationship with students of various needs.

Identify, on the basis of observation of teacher-pupil interaction, specific teaching strategies and competencies that are needed to effect desired specific outcomes. Determine empirically whether observed strategies produce or are meaningfully related to outcomes on both short-term and long-term bases. This will involve (a) the development and adaptation of observation systems on generic teaching behaviors and on specific content-based strategies, (b) ecological studies of classroom interactions, and (c) comparative studies of teacher behaviors and effectiveness in different content areas.

Selection of Personnel for Admission to Training Programs and Job Placement

Investigate ways to better use practicum and student-teaching experiences to facilitate the selection--and self-selection--of those trainees who will be effective in the field of special education.

Analyze models of selection which match trainees to particular training models, performance models, and operational education programs in which they will function most effectively.

Identify relevant characteristics of personnel who are successful in various roles. Determine how these relate to characteristics at entry into training and into the field, how they relate to success in transferring from one role to another, and if they are predictive of success on the job.

Identify the factors that make up and influence the decision-making process in selecting personnel and determine how effective they are. Include such factors as criterion-referenced measures of competence, objective vs. subjective judgments (personality), requirements of affirmative action programs, legal considerations, and fiscal constraints.

Establish priorities for the allocation of resources to preservice vs. in-service training programs. Judgments should be made on the basis of studies of attrition from the field, the likelihood that teachers will return for further training, and the relative cost benefits.

Develop models for the selection of personnel for training programs that relate the policies on admissions (open vs. selective) to critical points during the training, achievement at exit from the training program, and cost effectiveness.

Personnel Training and Retraining

Study the training and retraining processes to determine which aspects relate to effective personnel development. Include as a measure of effectiveness the development, reinforcement, and maintenance of behaviors appropriate for working with the handicapped.

> Are programs more effective when there is a match of characteristics and learning styles?
>
> Determine which competencies are needed by personnel working in various alternative special-education delivery models such as: resource rooms, community-based programs, mainstreaming models, consulting teacher models, self-contained classrooms, and itinerant models.

Develop models for community-based programs to train para-educational personnel to work effectively with special educators and parents on planning educational outcomes for the handicapped.

Develop and validate specific training programs on classroom management including strategies for effective classroom control, effective motivational methods, and teacher self-evaluation of management success. (Programs should be for both preservice and in-service training.) Include in the instructional methodology the use of case studies of pupil behavior in varied management settings with varied degrees of structure.

Devise personnel-development programs for such curriculum areas as: creativity, survival skills, self-understanding, learning how to learn, human relations, aesthetic orientation, recreation/leisure, and citizenship. Develop measurement technology in these same areas.

Develop model programs to train teachers in planning educational outcomes for the handicapped. Include in the program:

- Procedures for initial diagnostic and assessment procedures
- Measurement techniques for continuous monitoring of educational outcomes
- Training in how to observe behaviors
- Strategies for negotiating with students on appropriate outcome objectives that take into account the students' life styles and cultural differences

Personnel Utilization

Study alternative configurations of manpower utilization as they relate to:

- Cost effectiveness
- Social, economic, and political influences
- The role of the teacher as a program manager
- Effectiveness as judged by pupil outcomes and difference by types of handicapping conditions
- Effectiveness in mainstreaming models along the continuum from residential institution to regular classroom

Determine how regular classroom teachers perceive the effectiveness of consultant and resource teacher services. Determine ways to develop effective, cooperative relationships among regular teachers, special teachers, resource teachers, and other ancillary personnel.

Study the roles of the parent and other nonprofessionals in the special education process including factors involved in developing and maintaining the involvement

of these personnel, differential roles they may fill in planning, in placement, and in programming; and their relationships to special education professional personnel.

Study the implications of mandates for the equalization of educational opportunity as they relate to the population to be served, types of intervention programs, and manpower needs.

Relationship between Personnel Utilization and Service Delivery Systems

Identify the teaching skills, information, and attitudes that are needed by personnel working in alternative delivery systems:

> Which are generic and which are specific to type of handicapped to be served?
>
> What special needs do regular teachers have in order to implement mainstreaming programs?
>
> What support system is necessary to accomplish mainstreaming?

Determine the effectiveness of varied patterns of personnel utilization (teachers, family, aides, resource personnel, and so on) in varied service delivery systems.

Investigate the concept of intervention by developmentalists who provide early diagnosis of developmental problems, build individualized programs for children with such problems, and who work with the parents to develop techniques to help both the child and the family.

Learning Environment

Analyze the learning environment and its effect on pupil learning and adjustment. Studies should include consideration of special education service alternatives, conditions, facilities, administration, and personnel roles. They should

consider functions at the system, the program, and the individual classroom levels. And they must look at the affective factors such as the development of self concept and interpersonal relationships.

Does the integration of innovative special education programs affect the total school program? Does it change how the community perceives special education pupils? How does it affect costs? How does it affect pupil self concepts?

Identify change agents and barriers to institutional and individual change:

> How can we influence public school administrators and the social structure to incorporate into the educational system atypical programs and personnel trained to new roles?

Job Market for Special Educators

Develop a management information system for continuous prediction of personnel needs in institutions, state and local departments, and so on.

Determine ways to select from the talent pool of existing teachers candidates for training--or retraining--to teach handicapped children. Develop criteria of success which are specific to the setting in which the teacher will be employed, focusing on teaching style as well as on pupil gain.

Determine how personnel competencies relate to job specifications and to employee selection processes.

Information Dissemination

Determine how information and training materials can best be disseminated and made readily available for use by practitioners.

Study the effectiveness of multimedia techniques for disseminating information on exemplary programs and explore the feasibility of disseminating materials through a BEH loan/rental program.

Additional Concerns Related to Measurement

Describe the sequential development of handicapped pupils and develop models for measuring skill sequences.

Develop multiple measures of pupil outcomes as opposed to global and traditional achievement tests of specific skills.

Develop innovative approaches to defining criteria for assessing pupil progress in the classroom as related to specified pupil outcomes and to developing techniques for measuring personnel competencies as they relate to increased rates of pupil growth. Studies should take into account both direct and indirect service delivery systems and cost benefits.

Develop models for evaluating pupil outcomes that provide for feedback to teachers as an aid to improving their teaching performance.

Develop technologies for pupil assessment that include naturalistic observation, criterion-referenced testing, and situational performance appraisal. Develop programs to train teachers how to use such techniques and how to develop their own.

Develop performance criteria and instrumentation for the assessment and career guidance of trainees that include measures of attitude and evaluation by pupils.

Develop models to evaluate the effectiveness of personnel development relative to trainer and trainee performance and pupil outcomes. Methodologies should include a procedure for using evaluation data to improve the programs.

APPENDIX I

Preliminary Conference Recommendations for Research
(Ordered by Frequency)

Table 1: Preliminary Conference Recommendations for Research Related to Career Education for the Handicapped

Ordered by frequency of need category and by individual research needs within category

Research Need	Number of Recommendations	
Reasons for unemployment among the handicapped		97
matching of competencies	22	
skills	15	
curriculum	14	
social skills	12	
employer attitude	9	
reasons for job loss	8	
attitude of handicapped toward work	7	
reasons for not being hired	5	
skills for securing and maintaining job	5	
Aids to the handicapped for job entry and maintenance		72
skill development on job or at school	17	
effective job placement	14	
family and community attitudes	12	
influence on society to hire	11	
family aspiration as it affects choice	7	
appropriate job opportunities	6	
manuals	5	
Career Education to prepare the handicapped for career choice		71
methods of career education	20	
models for career education	14	
sequence of career education	13	
pupil assessment	7	
teacher attitudes	7	
identification of successful programs	5	
assessment of career education	5	
Personnel interaction with the handicapped		62
counseling methods	17	
career guidance counselors	16	
family roles	11	
personnel training	6	
counselor characteristics	4	
counselor effectiveness	4	
attitudinal scale	4	

Table 1 (continued)

Research Need	Number of Recommendations	
Utility of a central information system to serve the handicapped		50
career education and supportive services after schooling	19	
delivery system for handicapped not in learning school	15	
identification and information on various activities for the handicapped	8	
legal civil rights information	8	
Needs for leisure-time activities for the handicapped		35
relation of leisure-time activities to career development	8	
attitudes toward leisure activities	8	
transfer effect of training in recreational skills to other areas	6	
use of leisure-time	5	
legal policies	4	
mobil units-audio/visual aids	4	
Strategies to teach decision making skills		29
Strategies to teach daily living skills		23
family attitudes affect on development	8	
Effects of physical mobility on the handicapped		23
availability of public transportation	7	
barriers to mobility	6	
driver education	5	
barriers to community and leisure-time activities	5	
Needs for adult and continuing education		15
specific types of adult and continuing education	6	
adequacy of retraining programs	5	
percentage of handicapped using adult education	4	
Attitudes toward the handicapped		13
non-handicapped workers toward handicapped workers	5	
desensitizing negative reactions	4	
community and organizational attitudes	4	

Table 1 (continued)

Research Needs		Number of Recommendations
Critical factors for job mobility		12
factors influencing lateral and vertical mobility	8	
critical patterns of mobility	4	
Adequacy of services for the handicapped		7
rehabilitation and supportive services	7	

Table 2: Preliminary Conference Recommendations for Research Related to Education of the Severely Handicapped

Ordered by frequency of need category and limited to research needs reported four times or more*

Research Needs	Number of Recommendations
Program Planning: goal setting, disability compensation, assessment, intervention, implementation, personnel needs, living skills, adult severely handicapped, settings	10
Teaching technologies and programs for personnel development	8
Evaluation of management systems	8
Assessment of current dissemination effectiveness	7
Early identification of the handicapped	5
Competencies needed by administrators	5
Personnel evaluation	4
Immediate and long range effects of services	4
Communications/dissemination models	4
Development of a national communications system	4
Strategies for communicating with parents	4
Decision making	4

*It should be noted that the conference was structured so that each of the 10 small working groups would focus on a particular aspect of education for the severely handicapped (see p. 00). Lack of overlap across groups, therefore, accounts for the low frequencies.

Table 3: Preliminary Conference Recommendations for Research Related to Early Childhood Education for the Handicapped

Ordered by frequency of need category within focus topic

Research Need	Number of Recommendations
Child Characteristics:	
Determination of critical skills in various domains of development	22
Early diagnosis of handicapping conditions	16
Interrelationships between handicapped child and his environment	13
Problem solving strategies	12
Family competencies needed to foster handicapped childs' growth	11
Effects of the handicapping condition on child, family, teacher, etc.	9
Longitudinal studies of impact of early education on children with different needs and types of handicaps in various delivery systems	6
Use of information on research in other disciplines as it applies to work with the handicapped	4
Service Delivery Systems and Institutional Models	
Multivariate comparative studies of relationships among institutional parameters, service delivery feasibility, and child and family outcomes	15
Development of specialized program evaluation techniques	13
Special service needs and intervention strategies for integration of handicapped children	12
Coordination between medical and educational agencies	9
Retrospective analyses of clusters of successful programs	8
Determination of characteristics of successful institutions and programs	6
Role of research and service institutions in influencing legislative decision making	6
Strategies to provide services to hard to reach children	5

Table 3 (continued)

Research Need	Number of Recommendations
Coordination of services for handicapped children	4
Systematic development of curricula and program evaluation techniques	3
Appropriateness of delivery strategies, teaching techniques and curriculum content	3
Application of research findings	2
Effects of integration on the handicapped child	2
Strategies for implementing innovative programs	2
Definition of existing service delivery (types of service and delivery systems, and situational context variables	2
Personnel Preparation	
Identification of specific skills needed by personnel	23
Special orientation and training needs of personnel who work with young handicapped children	13
Alternative personnel training models	6
Models for cross-institutional programs for personnel development	6
Competencies needed by those who train personnel	4
Projections of manpower needs	4
Strategies for timely institutional response to new personnel needs	4
Effects of institutional organization on teacher performance	3

Table 4: Preliminary Conference Recommendations for Research Related to the Development of Personnel to Serve the Handicapped

Ordered by frequency of need category and limited to research needs reported four times or more

Research Needs	Number of Recommendations
Relationship of pupil outcomes to personnel competencies	27
Relationship of pupil outcomes to personnel characteristics	24
In-training assessment of personnel performance, development, and potential	23
Models for personnel development	23
Effects of critical variables on handicapped pupils' learning	18
Relationship of pupil outcomes to teaching strategies	15
Effective interaction among personnel	14
Assessment of pupil growth	13
Parents and other nonprofessionals as teachers	13
Effectiveness of personnel development programs	9
Needs for formal training of nonprofessional personnel	9
Use of community personnel and resources	7
Variables that affect pupil learning outcomes	6
Models for evaluating personnel development programs	6
Communication with decision makers	6
Justification of costs for special programs	5
Strategies for teaching daily living skills	5
Retraining of teachers to work with the handicapped	5
Strategies for teaching educational values to the handicapped	4

Table 4 (continued)

Research Needs	Number of Recommendations
Strategies to effect change in attitudes about the handicapped	4
Management information systems to project manpower needs	4
Adequacy of services for the handicapped	4
Personnel competencies to facilitate and evaluate change	4
Training to facilitate transfer of personnel roles	4